CURTIS'S
BOTANICAL MAGAZINE,

COMPRISING THE

Plants of the Royal Gardens of Kew,

AND

OF OTHER BOTANICAL ESTABLISHMENTS IN GREAT BRITAIN;
WITH SUITABLE DESCRIPTIONS;

BY

SIR JOSEPH DALTON HOOKER, M.D., C.B., K.C.S.I.,
F.R.S., F.L.S., ETC.,
D.C.L. OXON., LL.D. CANTAB., CORRESPONDENT OF THE INSTITUTE OF FRANCE.

VOL. LI.
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OSEPH DALTON HOOKER, M.D., K.C.S.I., C.B., F.R.S., F.L.S.
Late Director of the Royal Botanic Gardens of Kew.

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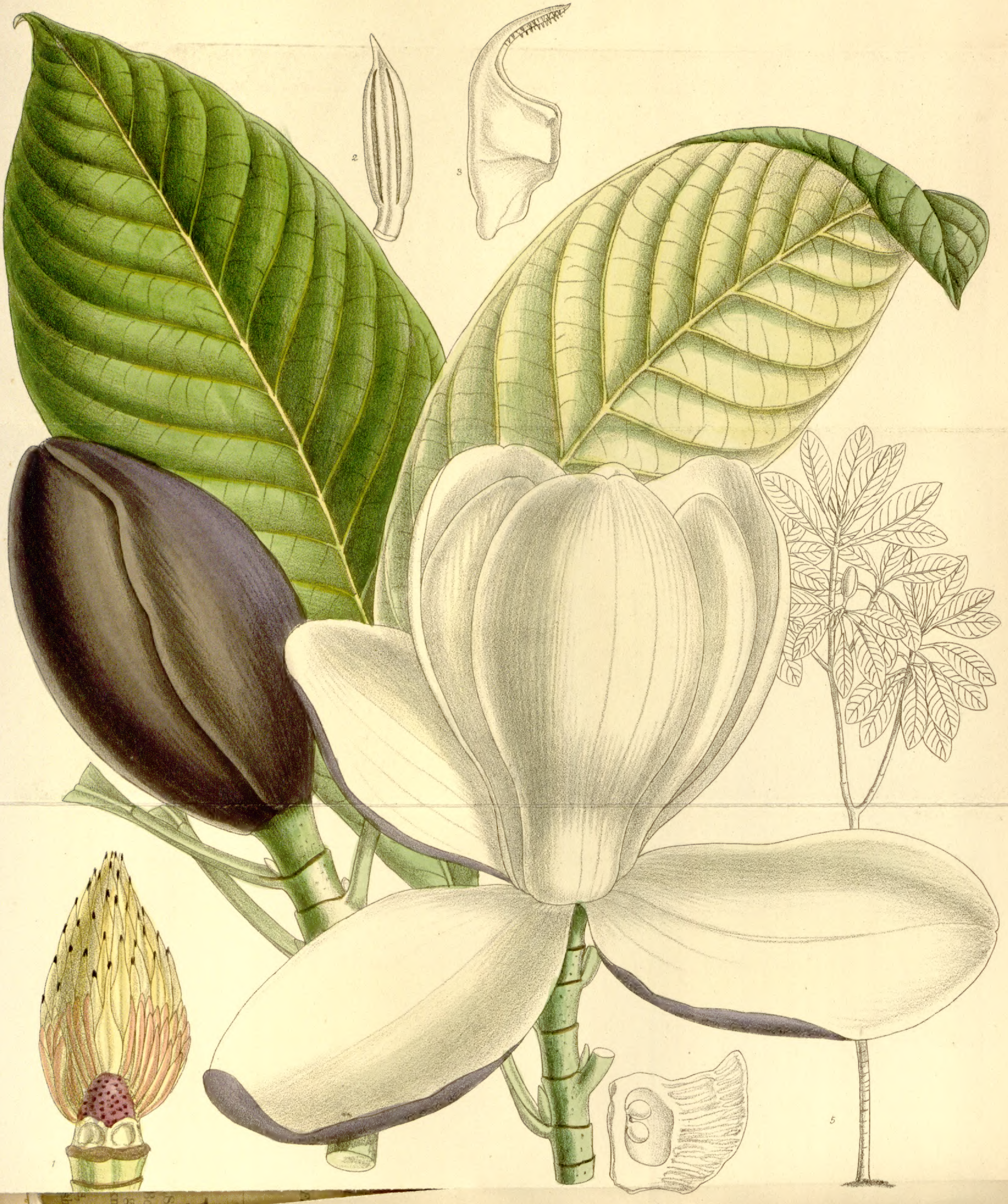

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TAB. 7392.

TALAUMA HODGSONI.

Native of the Eastern Himalaya.

Nat. Ord. MAGNOLIACEÆ.—Tribe MAGNOLIEÆ.

Genus TALAUMA, *Juss.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 18.)

TALAUMA *Hodgsoni*; arbor 50–60-pedalis, foliis amplis obovato-oblongis obtusis v. cuspidatis marginibus subsinuatis supra creberrime reticulatis subtus glaucis, petiolo bipollicari, floribus amplis solitaris terminalibus, pedunculo crasso 1–2-annulato, alabastro ovoideo, bracteis caducis, sepalis 3–5-obovato-oblongis obtusis extus læte cœruleo-purpurascentibus, petalis ad 6 sepalis consimilibus albis fructu magno ovoideo, carpellis subtetragonis acute rostratis, rachi profunde excavato foveolis rotundato-quadratis.

T. Hodgsoni, *Hook. f. & Thoms. Fl. Indica*, p. 75, *et in Fl. Brit. Ind.* vol. i. p. 40. *Hook. f. Illustr. Himal. Pl.* t. 6. *Gamble, List of Trees of Darjeeling*, p. 3, & *Manual of Indian Timbers*, p. 5.

Talauma Hodgsoni is one of the noblest of the flowering forest trees of the Himalaya, a country which, considering its narrow area, contains perhaps more handsome magnoliaceous trees than does any other of equal dimensions in India, if not of the world. Its forests produce *Magnolia Campbellii*, Hf. & T. (Tab. 6793), *globosa*, Hf. & T.; *pterocarpa*, Roxb., *Manglietia insignis*, Bl.; *Michelia Cathcartii*, Hf. & T., *M. Champaca*, Linn., *M. excelsa*, Bl., *M. lanuginosa*, Wall. (Tab. 6179) and *M. Kisopa*, Ham. Of these the prince is, no doubt, *Magnolia Campbellii*, and next to it is *Talauma Hodgsoni*, of which I was the fortunate discoverer in 1848, when I found it forming forests in the valleys of Sikkim at an elevation of 5000 to 6000 ft., and it was subsequently gathered by Dr. Thomson and myself in the Khasia hills.

As a timber tree *T. Hodgsoni* is not of much use. Mr. Gamble, in his valuable "Trees, Shrubs, and large Climbers of the Darjeeling District," says of the wood, that it is white, but in very old trees quite black, especially the wood of the roots; as also that it is used for the handles of weapons and tools, and for other small-wood purposes. Its specific name commemorates the services to the Literature, Arts, and Sciences of India of my late distinguished friend, the Orientalist, Brian H. Hodgson, LL.D., F.R.S., formerly Minister at the Nepal Court, my host for many months at Darjeeling, who passed away only last year at the great age of ninety-four.

Two plants of *T. Hodgsoni* were received at Kew from the Botanical Gardens, Calcutta, about twenty years ago, and were grown in pots in the Palm House. They were subsequently removed to the Temperate House, and planted out there, where the tallest is now 25 ft. high, with leaves 2 ft. long. Mr. Watson informs me that the plant flowered in a sunny position, and that the flowers last but a few hours after fully opening. They are at first white, then change to creamy-yellow, before fading to a dark brown. My attention was first directed to the tree in the dense Sikkim forests by seeing the petals in the ground, which resembled hen's eggs, and had a spicy fragrance.

Descr.—An erect evergreen tree, with a clean trunk of 30 to 40 feet high, and three to six feet in girth, flowering and leafing together. *Leaves* 8–20 inches long, by 4–9 broad, obovate-oblong, cuspidate or obtuse, coriaceous, glabrous, margins waved; costa and nerves strong; nervules closely reticulate, bright green above, pale, and more or less glaucous beneath; petiole 1–2 inches long. *Flowers* solitary, terminal, fragrant, 6–7 inches in diameter across the outspread sepals; peduncle 1–1½ in. long, stout, green, ringed by the caducous bracts; buds about 3 inches long, ovoid. *Sepals* 3–5, obovate-oblong, concave, thick and fleshy, dark vinous purple externally; suffused internally with pink. *Petals* about six, like the petals, but all white or faintly rose-colrd. towards the tips. *Stamens* numerous, on a conical torus; filaments very short, anthers linear, red. *Fruit* ovoid, woody, four to six inches long, muricate, formed of numerous sharply beaked dehiscent carpels, which fall away from a deeply pitted woody central column. *Seeds* one or two in each carpel, orbicular, compressed; outer coat of testa fleshy, red.—*J. D. H.*

Fig. 1, Apex of peduncle with stamens and carpels, some of the latter removed to show the convex receptacle:—*of the nat. size*; 2, stamens; 3, carpel; 4, the same laid open, showing the ovules, *all enlarged*; 5, *reduced* views of plant in the temperate house, Kew.

M. S. del, J. N. Fitch lith
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TAB. 7393.

ACIDANTHERA ÆQUINOCTIALIS.

Native of Sierra Leone.

Nat. Ord. IRIDEÆ.—Tribe IXIEÆ.

Genus ACIDANTHERA, *Hochst.*; (*Benth. et Hook. f. Gen. Plant.* vol. iii. p. 706.)

ACIDANTHERA *æquinoctialis*; cormo magno, depresso-globoso tunicis exterioribus scariosis brunneis fibris parallelis, caule stricto erecto elongato, foliis pluribus ensiformibus superpositis pedalibus vel sesquipedalibus vaginato, spicis distichis laxissimis simplicibus 3–6-floris, spathæ valvâ exteriori lanceolata elongata foliacea, perianthii tubo cylindrico apice curvato, limbi segmentis ovatis cuspidatis late imbricatis albis basi purpureo maculatis flore expanso horizantaliter patulis, genitalibus arcuatis limbo paulo brevioribus, fructu oblongo-trigono.

A. æquinoctialis, *Baker in Journ. Linn. Soc.* vol. xvi. p. 160; *Handb. Irid.* p. 188. Gladiolus æquinoctialis, *Herb. inedit.*

This is the tallest and most showy of all the known species of *Acidanthera*, a genus which holds an intermediate position between *Gladiolus* and *Ixia*. The present species for half a century has been known only from a drawing of the spike by Dean Herbert, contained in a bound quarto volume of his sketches in the Lindley library. It was rediscovered in fruit in 1892 by Mr. Scott-Elliot, in the crevices of bare gneiss rocks, near the summit of Sugarloaf Mountain, Sierra Leone, at an elevation of about three thousand feet above sea-level. In this state it was not recognized, and was distributed in his dried collection as No. 3904. In 1893 a quantity of corms was sent home by Captain Donovan, which was handed over to the Royal Gardens at Kew. Those which received greenhouse treatment failed to flower, but in a warm conservatory they found themselves quite at home, and came into flower in the month of November. Seventeen species of the genus are now known. One inhabits Mount Kilimanjaro, two the mountains of Abyssinia, one of them extending to Zambesi land, and all the others belong to different regions of the Cape Colony.

Descr.—*Corm* large, depresso-globose; outer tunics scariose, brown, with parallel fibres. *Stem* stout, stiffly

erect, three or four feet long. *Leaves* many, superposed, ensiform, a foot or a foot and a half long, glabrous, strongly ribbed. *Flowers* three to six in a very lax, simple, distichous spike; outer spathe-valves lanceolate, foliaceous, three or four inches long in the lower flowers. *Perianth* tube slender, cylindrical, curved at the top, five or six inches long; limb two inches in diameter; segments ovate, cuspidate, much imbricated, white, with a purple spot at the base. *Stamens* contiguous, arcuate, rather shorter than the segments of the perianth. *Capsule* oblong-trigonous, an inch long.—*J. G. Baker.*

Fig. 1, Front view of anther; 2, back view of anther; 3, stigmatic lobes and upper part of style; *enlarged*; 4, whole plant *much reduced.*

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TAB. 7394.

LONICERA ALBERTI.

Native of Eastern Turkestan.

Nat. Ord. CAPRIFOLIACEÆ.—Tribe LONICERÆ.

Genus LONICERA, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 5.)

LONICERA (Xylosteum) *Alberti*; fruticulus humilis, rigidus, ramosissimus, glaberrimus, foliis sessilibus linearibus obtusis subtus albicantibus, basi sæpissime dentibus acutis 1 v. 2 utrinque auctis, floribus ramulis lateralibus 2-nis, bracteolis in involucrum brevem stipitatum 4-lobum connatis, lobis rotundatis, ovariis liberis ovoideis, calycis dentibus 5 inæqualibus obtusis, corollæ roseæ tubo cylindraceo, lobis tubo intus piloso brevioribus subæqualibus ovatis obtusis patentibus, staminibus breviter exsertis, stigmate spathulato recurvo baccis liberis.

L. Alberti, *Regel in Act. Hort. Petrop.* vol. vii. (1880), p. 550, and in *Gartenflor.* (1881), p. 370 and 387, t. 1065.

Lonicera Alberti is typical of a considerable number of the *Xylosteum* section of Honeysuckles that inhabit the dry mountains of Central Asia from the Altai to the Himalaya, where they form stunted, intricately branched shrubs. In the Himalaya there are no fewer than eighteen such species, of which hardly any occur below 6000 ft., many are confined to elevations between 10,000 and 12,000 ft., and one ascends to above 16,000 ft. in Tibet, north of Sikkim. *L. tomentella*, figured at t. 6486, is an example of one of the larger of the group. For the most part they have nothing to recommend them horticulturally, and their habit and habitat are all they have to interest a botanist. *L. Alberti* is the most attractive of those known to me, from its abundance of bright, rose-colrd. flowers, and sweet, though faint odour. It is one of the many discoveries of Dr. Albert Regel, a distinguished explorer of Western Turkestan, who, during arduous and often perilous services in Central Asia, made large collections of living and dried plants for his father, Dr. de Regel, the late eminent Director of the Imperial Gardens of St. Petersburgh. A plant of it was sent to Kew by Dr. Regel

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from those gardens in 1880, which flowered in May, and is, as might be expected, perfectly hardy.

Descr.—A small, much-branched, quite glabrous shrub 2 ft. high; branches divaricate in native specimens, less so in cultivated, bark dark. *Leaves* $\frac{3}{4}$–$1\frac{1}{4}$ in. long, sessile, linear, obtuse, very pale beneath, quite entire, or with one or two acute teeth on each side, near the base. *Flowers* in pairs, terminating short lateral branches, fragrant; bracts short, rounded, connate into a 4-lobed stipitate cup, the ovaries quite free. *Calyx-tube* ovoid, contracted at the tip; lobes 4, short, obtuse, unequal. *Corolla* glabrous, rose-red; tube cylindric, hairy within, $\frac{1}{4}$–$\frac{1}{3}$ in. long; limb $\frac{1}{2}$ in. diam., lobes equal, ovate, obtuse. *Stamens* shortly exserted. *Stigma* spathulate, recurved.—*J. D. H.*

Fig. 1, Top of flowering branch and flowers; 2, ovary and style; 3 and 4, stamens:—*All enlarged.*

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TAB. 7395.

ACACIA SPADICIGERA.

Native of Central America and Cuba.

Nat. Ord. LEGUMINOSÆ.—Tribe ACACICEÆ.

ACACIA (Gummiferæ) *spadicigera*; frutex rigidus, ramosus, stipulis spinescentibus demum maximis 1–1½ pollicaribus inflatis corneiformibus brunneis rectis curvisve basi connatis, pinnis 4–8 jugis, foliolis 15–20-jugis lineari-oblongis obtusis, puberulis costa nunc inappendiculata, nunc appendicula fusiformi carnosula caduca apice instructa, spicis axillaribus solitariis binisve crasse pedunculatis cylindraceis obtusis densifloris, pedunculo basi involucellato, floribus minimis aureis sessilibus densissime congestis squamulis longe stipitatis peltatis immixtis, calycis urceolati lobis brevibus obtusis, corolla calyce paullo longiore 5-dentata, staminibus breviter exsertis, legumine sessile oblongo recto v. falcato.

A. spadicigera, *Cham. et Schl. in Linnæa*, vol. v. (1830) p. 594. *Benth. in Trans. Linn. Soc.* vol. xxx. p. 514. *Hemsl. Biol. Centr. Amer. Bot.* vol. i. p. 355.

A. cornigera, *Willd. Sp. Pl.* vol. iv. p. 1080, *excl. syn. Ait. Hort. Kew*, Ed. I, vol. iii. p. 441. *A. Rich. Fl. Cub.* vol. i. p. 462.

A.? cornigera, *DC. Prodr.* vol. ii. p. 460, *Ecl. Syn.*

Mimosa cornigera, *Jacq. Select. Stirp. Amer. Hist.* p. 266.

The plant here figured is one of two closely allied species of *Acacia*, *A. spadicigera* and *A. sphærocephala*, remarkable for their enormous horn-like stipules. Both are included under *Mimosa cornigera*, Linn. (*Acacia cornigera*, Willd.), which was founded on the *Arbor cornigera* of Hernandez, "De Historia Plantarum Novæ Hispaniæ" (p. 86), published in 1651, who unfortunately gives no description of the plant, only two rude woodcuts of the leaves and stipules, with a brief account of the latter forming the home of a stinging ant.

The history of the twin *Acaciæ cornigeræ* is horticulturally interesting, one of them having been in cultivation previous to 1692, in the Royal Gardens of Hampton Court, under the names of the *Horn'd Acacia*, or *Cuckold tree*, and of which a leafing branch with stipules was figured by Plukenet in the "Phytographia" in 1696, as *Acacia Americana . . . aculeis cornua bovina referentibus.* Plukenet does not describe the flowers, but cites Hernandez' plant as a

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synonym, relying, no doubt, on the similarity of the spines.

In the following year, 1697, Commelin, "Hortus Medicus Amstelodamensis" (vol. i. p. 209, t. 207), figures an *Arbor cornigera*, and describes it as having a globose head of flowers (as in *A. sphærocephala*) giving as the habitat Cuba and Mexico. He does not figure the flowers, but as he cites Breyn's "Prodomus Historiæ Plantarum Rariorum" (1680), in which the globose heads are mentioned, he may have borrowed this particular from Breyn. Referring to the latter work, I find a good description of his plant, flower, fruit, and seed, with a citation of Hernandez' *Arbor cornigera;* but he adds that Hermann had stated, on the authority of an English nobleman versed in Herbaria, that his (Breyn's) plant was not that of Hernandez; from which it may be surmised that the English nobleman, knowing the Hampton Court plant, regarded it, and not Breyn's, as that of Hernandez. This would further render it probable that the Hampton Court plant was, if either, *A. spadicigera.*

In 1734 Seba, in his "Thesaurus" (i. p. 213, t. 70, f. 13) figures spines and leaves of an *Acacia cornuta*, and cites Recchus (the compiler of the Botanical chapters in Hernandez) for it; giving also Hernandez' native name, Hoitzmamaxatl, together with his description of the ants, &c. The figure answers to either species. He says it was sent to him by a friend in the East Indies, no doubt an error.

Linnæus, in the "Hortus Cliffortianus" (1737, p. 208), under *Mimosa aculeis alarum geminatis*, cites for it Hernandez, Plukenet, Breyn, and Commelin, with Mexico and Cuba as habitats, but unaccountably overlooks the description of the flowers given by the two last named authors. In 1753 the twins were in the Species Plantarum, included under *Mimosa cornigera*; all previous authorities, except Hernandez, being cited for it.

In 1763 Jacquin ("Select. Stirp. Amer. Hist." p. 266) described *Mimosa cornigera*, Linn., as having cylindric spikes of yellow inodorous flowers; and cites Commelin, while overlooking his description of globose heads. Willdenow, in "Species Plantarum" (iv. 1080) was, I think, the first to refer *Mimosa cornigera*, Linn. to *Acacia*, describing it as having flowers in cylindric spikes, and in this he is followed by De Candolle in the Prodromus, both authors citing Commelin, without looking at his description; I have found no work in which the two species were discriminated earlier than the 9th edition (Martyn's, 1807) of Miller's "Gardener's Dictionary," where one appears as *Mimosa*, n. 49, with "flowers in cylindric spikes, yellow," and the other, n. 44, with "spikes globular white." The latter, he says, was sent to Europe in 1729, from Vera Cruz, but was cultivated at Hampton Court in 1690. Lastly, Chamisso and Schlechtendahl, in "Linnæa" (vol. v. 1830, p. 594) describe the two as *Acacia spadicigera* and *A. sphærocephala*, names adopted by Bentham in his exhaustive monograph of *Acacia*, and which will, no doubt, be retained; and that of *A. cornigera*, Willd., be suppressed, having regard to the fact that, by citing Commelin, Willdenow virtually included both under it.

Reverting to Hernandez' figure or rather figures, for there are two, it is possible that they pourtray both species, their "horns" are identical; but the leaves of the right hand figure have short pinnæ, with fewer pinnules, as in *A. spadicigera*; those of the left hand one have pinnæ twice as long, and very numerous pinnules, as in *A. sphærocephala*. Which the Hampton Court species may have been is doubtful. If Commelin's description refers to it, it is *A. sphærocephala*; if the English nobleman's opinion is worth anything, the plant was more probably *A. spadicigera*. In conclusion, it must be remembered that there is a third Mexican *Acacia*, with similar horned stipules, namely, *A. Hindsii*, Benth., which differs from *A. spadicigera* in having very slender spikes of flowers. It may be one of Hernandez's two plants. It is a native of the West Coast of Mexico, and hence less likely than the others to have been introduced at an early date.

The plant from which the drawing of *A. spadicigera* is taken was received from M. Linden of Ghent in 1882. It is cultivated in a pot on a shelf in the Palm House, along with two allied species, *A. sphærocephala* and *A. Hindsii*, both of which have large horn-like spines and fleshy appendages on the tips of the leaflets. Of these *A. sphærocephala* has since flowered, and a figure of it has been prepared for this work. *A. spadicigera* flowered in May of last year, but produced no ovaries in any of the flowers examined. There are native specimens of it in the Kew Herbarium from Mexico, Central America, Panama, and St. Martha, in New Grenada.

Far more interesting than the synonymy of these horned *Acacias* is the fact that when found they play a wonderful part in the economy of nature, by housing and feeding a tribe or tribes of ants which find their habitation in the stipular thorns, and their food in the fleshy appendages on the tips of the leaves; a hospitality which they repay with interest, by waging a successful war against the armies of leaf-cutting ants who would otherwise soon extirpate the *Acacias*.

This curious subject was carefully studied by the late observant Naturalist, Mr. Th. Belt, whose published account of it is so interesting, that, feeling sure it will be welcome to the readers of the "Botanical Magazine," I herewith extract it.—*J. D. H.*

"These thorns are hollow, and are tenanted by ants that make a small hole for their entrance and exit near one end of the thorn, and also burrow through the partition that separates the two horns, so that one entrance serves for both. Here they rear their young, and in the wet season everyone of the thorns is tenanted; and hundreds of ants are to be seen running about, especially over the young leaves. If one of these be touched, or a branch shaken, the little ants (*Pseudomyrma bicolor*, Guer.) swarm out from the hollow thorns, and attack the aggressor with jaws and sting. They sting severely, raising a little white lump that does not disappear in less than twenty-four hours.

"These ants form a most efficient standing army for the plant, which prevents not only the mammalia from browsing on the leaves, but delivers it from the attacks of a much more dangerous enemy—the leaf-cutting ants. For these services the ants are not only securely housed by the plant, but are provided with a bountiful supply of food; and to secure their attendance at the right time and place, this food is so arranged and distributed as to effect that object with wonderful perfection. The leaves are bipinnate. At the base of each pair of leaflets, on the midrib is a crater-formed gland, which, when the leaves are young, secretes a honey-like fluid. Of this the ants are very fond, and they are constantly running about from one gland to another to sip up the honey as it is secreted. But this is not all; there is a still more wonderful provision of more solid food. At the end of each leaflet there is, when the leaf first unfolds, a little yellow, pear-shaped body, united by a point, and the ants are then continually employed going from one to another examining them. When an ant finds one sufficiently advanced, it bites its small point of attachment; then, bending it down, it breaks it off, and bears it away to the nest. As these ripen successively, the ants are kept about the young leaf for some time after it unfolds; and no caterpillar or larger animal could attempt to injure them without being attacked by the little warriors. The fruit-like bodies are about $\frac{1}{12}$ in. long, and are about $\frac{1}{3}$ of the size of the ants; so that the ant bearing one away is as heavily laden as a man bearing a large bunch of plantains. I think these facts show that the ants are really kept by the acacia as a standing army, to protect its leaves from the attacks of herbivorous mammals and insects.

"The bull's-horn thorn does not grow at the mines in the forest, nor are the small ants attending them found there. They seem specially adapted for the tree, and I have seen them nowhere else. Besides the *Pseudomyrma*, another ant lives on these Acacias; it is a small black species of *Crematogaster*, whose habits seem to be rather different from those of *Pseudomyrma*. It makes the holes of entrance to the thorns near the centre of one of each pair; and it is not so active as that species. It is also rather scarce; but when it does occur it occupies the whole tree, to the exclusion of the other. The glands on the *Acacia* are also frequented by a small species of wasp *Polybia occidentalis*). I sowed the seeds of the *Acacia* in my garden, and reared some young plants. Ants of many kinds were numerous; but none of them took to the thorns for shelter, nor the glands and fruit-like bodies for food; for, as I have already mentioned, the species that attend on the thorns are not found in the forest. The leaf-cutting ants attacked the young plants and defoliated them; but I have never seen any of the trees out on the savannahs that are guarded by the *Pseudomyrma* touched by them, and have no doubt the *Acacia* is protected from them by its little warriors. The thorns, when they are first developed, are soft, and filled with a sweetish, pulpy substance; so that the ant, when it makes an entrance into them, finds its new house full of food. It hollows this out, leaving only the hardened shell of the thorn. Strange to say, this treatment seems to favour the development of the thorn, as it increases in size, bulging out towards the base; whilst in my plants that were not touched by the ants, the thorns turned yellow, and dried up into dead but persistent prickles. I am not sure, however, that this may not have been due to the habitat of the plant not suiting it.

"These ants seem to lead the happiest of existences. Protected by their stings, they fear no foe. Habitations full of food are provided for them to commence housekeeping with; and cups of nectar and luscious fruits await them every day. But there is a reverse to the picture. In the dry season, on the plains, the *Acaciæ* cease to grow. No young leaves are produced, and the old glands do not secrete honey. Then want and hunger overtake the ants that have revelled in luxury all the wet season; many of the thorns are depopulated, and only a few ants live through the season of scarcity. As soon, however, as the first rains set in, the trees throw out numerous vigorous shoots, and the ants multiply again with astonishing rapidity."—Belt., "The Naturalist in Nicaragua," p. 218 (1874).

Fig. 1, Portion of leaf with pinnule; 2, portion of spike with bracts and male flowers:—*Both enlarged.*

M.S.del. J.N.Fitch lith.

TAB. 7396.

CYRTOPODIUM VIRESCENS, *Reichb. f. & Warm.*

Native of Brazil.

Nat. Ord. ORCHIDEÆ.—Tribe VANDEÆ.

Genus CYRTOPODIUM, *Br.; (Benth. & Hook. f. Gen. Plant.* vol. iii. p. 541, *partim, Excl. Cyrtopera,* Bl.).

CYRTOPODIUM *virescens*; pseudobulbis fusiformibus annulatis, foliis hysteranthiis anguste lanceolatis acuminatis, scapo elato, vaginis remotis acutis, panicula multiflora, floribus basi dissitis, bracteis ovaria æquantibus oblongis acutis rubro punctulatis, floribus breviter pedicellatis 1 poll. diam., sepalis late ovatis acutis petalisque concoloribus ovato-rotundatis primulino-virescentibus purpureo guttatis, labello sepalis breviore carnosulo breviter unguiculato ambitu quadrato crenato-undulato subæqualiter 3-lobo, lobis lateralibus auriculæformibus rubro-purpureis, terminali 3-lobulato aureo rubro-guttato, disco inter lobos laterales cristis erectis crenatis aucto, columna mediocri pallida guttata.

C. virescens, *Reichb. & Warm. in Reichb. f. Otia Botan. Hamb.* p. 89. *Warm. in Vidensk. Meddel. Nat. Fr. Kjobenh.* (*Symb. Fl. Bras.*) 1884, p. 851, t. 7, f. 4.

Of the American genus *Cyrtopodium*, about thirty species have been described, but few have been introduced into this country. Such as have been are very handsome plants, especially *C. punctatum*, Lindl., figured at t. 3507 of this work, wherein also are represented *C. Woodfordii*, Sims, t. 1814, and *C. Andersonii*, Br. t. 1800, the type of the genus. All are terrestrial, pseudobulbous, and flower before leafing. In the "Genera Plantarum" the genus *Cyrtopera* is erroneously merged in it, as pointed out under Plate 7330 of this work; the latter genus being referable to *Eulophia*, Br.

The only recorded locality for *C. virescens* is that where it was discovered by Warming, namely, Lagoa Santa in Brazil. The specimen here figured was obtained from Messrs. F. Sander & Co. of St. Albans, and flowered in a warm house in the Royal Gardens in December, 1893. It matured its leaves in May of the following year.

Descr.—*Pseudobulbs* tufted, 3–4 inches long, fusiform, terete, pale green, with 4–6 narrow purple rings. *Leaves* about a foot long, by an inch broad, very narrowly lanceolate, acuminate, plicate, bright green. *Scape* two to four ft. high, as thick as a goose-quill, green; sheaths distant, acute. *Racemes* one to two ft. high, many-fld.; pedicels very short, the lower sometimes two-fld.; bracts three-fourths to one inch long, oblong or oblong-lanceolate, acute, as long as the ovary, the lowest green speckled with red-brown. *Flowers* about an inch in diameter. *Sepals* ovate, acute, and rounded petals pale primrose-yellow, blotched with dark red. *Lip* fleshy, very shortly clawed, quadrate in outline, with crisped subcrenate margins, 3-lobed; lateral lobes ear-shaped, dark red; terminal 3-lobulate, golden-yellow with dark red spots, lobules rounded; disk between the lateral lobes yellow, with erect, parallel, crenate, fleshy keels. *Column* rather stout, spotted. *Anther* 4-lobed; pollinia globose, sessile on a narrow, transverse membrane.—*J. D. H.*

Fig. 1, Lip; 2, column; 3, anther; 4, pollinia:—*All enlarged.*

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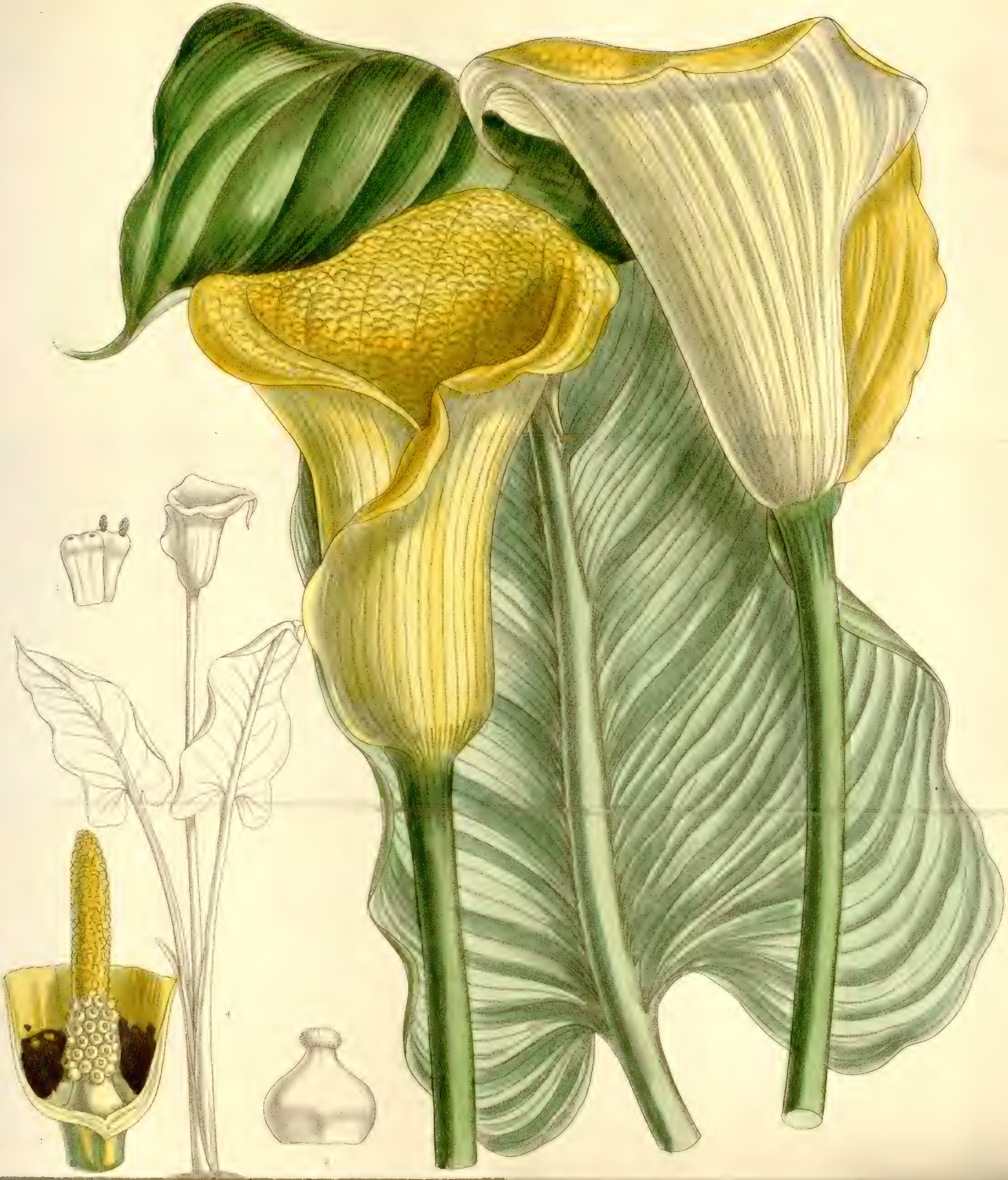

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TAB. 7397.

RICHARDIA PENTLANDII.

Native of Basutoland.

Nat. Ord. AROIDEÆ.—Tribe PHILODENDREÆ.

Genus RICHARDIA, *Kunth*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 982.)

RICHARDIA *Pentlandii*; elata, foliis immaculatis ovato-cordatis caudato-acuminatis sinu aperto, lobis rotundatis, costa crassa, spatha crocea late infundibulari tertia parte laxe convoluta intus leviter rugulosa, ore expansa, apice abrupte recurvo subulato, marginibus recurvis, ima basi intus plaga atropurpurea picta.

R. Pentlandii, *R. Whyte mss. Wats. in Gard. Chron.* 1892, vol. ii. p. 123, and 1894, vol. i. p. 590.

Of the eight recorded species of *Richardia* (all of which are African) five have now been figured in this magazine, namely, the original *R. æthiopica*, Kunth. (*Calla æthiopica*, tab. 832), *C. albo-maculata*, Hook. (tab. 5140), *C. hastata*, Hook. (tab. 5176), *C. melanoleuca* (tab. 5765), and that here represented. These fall naturally into two groups, according as the leaves are cordate or hastate at the base. To the first of these belong *R. æthiopica* and *Pentlandii*; to the latter *R. albo-maculata*, *hastata*, and *melanoleuca*. The differences in their spathes are well marked, that of *æthiopica* is white, narrow, with a long point; of *Pentlandii* as given above; of *albo-maculata*, like *æthiopica*; of *hastata*, greenish yellow, broadly open, with a long point, and of *melanoleuca* white with a purple base, broad, quite open, or convolute, at the base only. The spadixes of none afford good diagnostic characters. *R. Pentlandii* is much the largest leaved species, is the only one with a deeply gamboge yellow spathe within, which is much the largest and broadest of any. The other recorded species are all imperfectly known, namely, *R. angustiloba*, Schott, of Angola, *R. Rehmaniana*, Engl., and *R. Elliottiana*, Knigt (*ex Wats. i Gard. Chron., July* 30, 1892, p. 123), which may be a var. of *albo-maculata*.

FEBRUARY 1ST, 1895.

For the following account of the introduction into Europe, and of the native country of *Richardia Pentlandii* I am indebted to the articles upon this plant by Mr. Watson in the *Gardener's Chronicle* cited above. He says, "This plant was introduced by Mr. Whyte, Pentland House, Lee, who flowered it in May, 1892, and exhibited it at a meeting of the Royal Horticultural Society, when it was awarded a First Class Certificate." Mr. Whyte wrote in June, 1892, "I did not import this plant, but about two years ago a friend gave me six tubers, and said I should probably find a yellow-flowered one amongst them. Two flowered last year, and were only of the ordinary type, the third is that which I have called *R. Pentlandii*, and I think there will be another of this, or of the other three. In May, 1892, Mr. E. E. Galpin, F.L.S., a resident of Barberton, in South Africa, paid a visit to Kew, and brought with him six tubers of a yellow-flowered *Richardia*, whcih had been presented to him by a gentleman in the Transvaal, who obtained them from a Staats artilleryman, who got them from a Basuto chief whilst on active service. One of those (that here figured) is now (May, 1894), in flower at Kew, and proves to be identical with Mr. Whyte's *R. Pentlandii*.

Descr.—*Leaves* a foot long, subsagittately ovate-cordate, caudate-acuminate, broadest across the rounded basal lobes, which are separated by a rounded sinus, dark green above, unspotted; costa very stout; nerves slender; petiole two feet long, terete, quite glabrous, dark green. *Peduncle* longer than the leaves, dark green, quite glabrous. *Spathe* five to six inches high; an inch to an inch and a half broad about the middle, and three to four inches across the broad mouth, loosely convolute for two-thirds of the height, then expanding into a broad, nearly horizontal limb, with recurved margins, and suddenly narrowed into a recurved, subulate tip; outer surface canary-colrd., inner bright gamboge-yellow, and rugulose; base within dark purple. *Spadix* two inches long; ovaries occupying a third of its length.—*J. D. H.*

Fig. 1, Base of spathe laid open and spadix; 2, anthers; 3, ovary.—*All enlarged*; 4, *reduced view* of whole plant.

M.S. del. J.N. Fitch lith.

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TAB. 7398.

APHÆREMA SPICATA.

Native of South Brazil.

Nat. Ord. SAMYDACEÆ.—Tribe ABATIEÆ.

Genus APHÆREMA, *Miers.; (Benth. & Hook. f. Gen. Plant.* vol. i. p. 799.)

APHÆREMA *spicata*; herbacea, erecta, fere glaberrima, caule terete, foliis oppositis breviter petiolatis ovato-cordatis acuminatis serratis exstipulatis, floribus parvis in racemum spiciformem multiflorum terminalem erectum puberulum dispositis aureis breviter pedicellatis, bracteis subulatis, alabastris globosis, petalis 0, sepalis 4 ovatis valvatis persistentibus, staminibus 8–16 subperigynis filamentis filiformibus antheris didymis, loculis reniformibus, connectivo dilatato, ovario conico-ovoideo, placentis 3–4 parietalibus multiovulatis, stylo perbrevi, stigmate obscure 3–4-lobo, capsula parva depresso globosa loculicide 3–4 valvi polysperma, seminibus oblongis.

A. spicata, *Miers. in Proc. R. Hort. Soc.* vol. iii. (1863), p. 294.

Aphærema is a monotypic genus, founded on a plant discovered in South Brazil in the province of S. Paulo in 1861–2 by Mr. J. Weir, when collecting for the Royal Horticultural Society. It was described from Herbarium specimens by the late excellent botanist, J. Miers, F.R.S., in the Proceedings of the said Society. Since that period it has been collected, in so far as I am aware, by only one other botanist, Dr. Fritz Müller, who found it in the Province of Sta. Catherina, which adjoins S. Paulo on the south.

The specimen here figured agrees closely with Miers' characters, except in respect of the stamens being more than eight and up to sixteen, and the capsule being sometimes 4-valved, with as many placentas. The genus is very closely allied to *Raleighia*, of Gardner, if, indeed, it is not referable to it. The principal difference between them appeared to consist in *Raleighia* being stipulate, whilst *Aphærema* is exstipulate; for the more important character of the former genus, that of the stamens being very numerous and in several series, whilst *Aphærema* was supposed to have only eight, is invalidated by the

specimen here figured having sixteen. Nor is the stipular character free from doubt. In the "Genera Plantarum" (i. 799) *Raleighia* is described, on Gardner's authority, as having foliaceous, deciduous stipules. But this is an obvious oversight, for Gardner describes the leaves as exstipulate, and so I find them in the specimen in the Kew Herbarium, and so they are in the only other genus of the tribe, namely, *Abatia*, and in a hitherto undescribed species of *Raleighia*.

Descr.—A slender, glabrous shrub, or undershrub; branches erect, terete. *Leaves* opposite, two to three inches long, shortly petioled, ovate-cordate, obtusely acuminate, crenate-serrate; basal lobes rounded, sinus narrow, light green above, paler beneath; nerves six to eight pairs, deeply impressed. *Flowers* in solitary, terminal, slender, peduncled, nodding racemes, three to four inches long, shortly pedicelled, $\frac{1}{6}$ in. broad, golden yellow; buds globose; bracts subulate. *Calyx* four-partite; lobes triangular-ovate, valvate. *Petals* 0. *Stamens* 8, 12, or 16, perigynous; filaments slender; anthers yellow, didymous. *Ovary* broadly conico-ovoid, 3–4-celled; style short, stigma obscurely lobed; ovules numerous, on three or four parietal placentas, anatroprous.—*J. D. H.*

Fig. 1, Rachis of spike, bract, and bud; 2, flower; 3 and 4, stamens; 5, ovary; 6, the same in transverse section; 7, fruiting raceme; 8, capsule; 9, transverse section of do.; 10, immature seed:—all but fig. 7 *enlarged.*

738

M.S. del. J.N.Fitch lith.

Vincent Brooks,Day&S

TAB. 7399.

ALOE BRACHYSTACHYS.

Native of Zanzibar.

Nat. Ord. LILIACEÆ.—Tribe ALOINEÆ.

Genus ALOE, *Linn.*; (*Benth. et Hook. f. Gen. Plant.* vol. iii. p. 776.)

ALOE *brachystachys*; caudice elongato simplici, foliis dense rosulatis ensiformibus sesquipedalibus vel bipedalibus pallide viridibus immaculatis, aculeis marginalibus deltoideis concoloribus magnitudine mediocribus, pedunculo flexuoso elongato, racemo denso simplici, pedicellis elongatis ascendentibus apice articulatis, bracteis orbicularibus parvis, perianthio cylindrico pallide rubro apice viridi, lobis lingulatis tubo brevioribus, staminibus demum breviter exsertis.

This new *Aloe* was sent by Sir John Kirk in 1884 to the Royal Gardens, Kew, from Zanzibar. It flowered for the first time in the Succulent House in January, 1894, and proved to be a new species. It belongs to the true Aloes, with a long caudex, and dense rosette of ensiform leaves. Its nearest allies are *A. abyssinica* (*Bot. Mag.* t. 6620), and the Angolan *A. littoralis*, Baker, which has not yet been brought into cultivation. The number of *Aloes* known in Tropical Africa has increased very largely of late years.

Descr.—Caudex long, slender, erect, simple. *Leaves* about twenty, crowded together at the top of the stem, all except the youngest drooping, ensiform, one and a half or two feet long, two inches broad above the dilated base, narrowed very gradually to the point, bright green, smooth on both surfaces, unspotted, a quarter of an inch thick in the middle; marginal prickles deltoid, middle-sized, not brown at the tip in the cultivated plant. *Peduncle* simple, very flexuose, about as long as the leaves. *Raceme* dense, simple, oblong, half a foot long; pedicels ascending, an inch long, articulated at the tip: bracts orbicular, much shorter than the pedicels, pale green, with 5–7 distinct brown stripes. *Perianth* cylindrical, an inch and a quarter long, pale pink, tipped with green; lobes lingulate, shorter than the tube. *Stamens* finally shortly exserted.—*J. G. Baker.*

Fig. 1, A flower, cut open; 2, stamens; 3, ovary, *all enlarged*; 4 whole plant, *much reduced.*

7400

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Tab. 7400.

CEPHALANTHUS natalensis.

Native of S. E. Africa.

Nat. Ord. Rubiaceæ.—Tribe Naucleæ.

Genus Cephalanthus, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 30.)

Cephalanthus *natalensis*; fruticulus ramosissimus, ramulis pedunculisque hirtello-tomentosis, foliis breviter petiolatis ovatis acutis obtusis v. obtuse acuminatis, stipulis parvis triangularibus, capitulis nutantibus, bracteolis calycis tubo brevioribus clavatis ciliatis dorso glanduliferis, calycis tubo brevi, limbo 5-dentato puberulo sinubus eglandulosis, corollæ tubo gracili glabro superne infundibulari, limbo obliquo intus lobisque 5 brevibus ovatis pubescentibus, antheris vix exsertis, connectivo apice producto, stylo exserto, stigmate clavato, capitulis maturis succulentis.

C. natalensis, *Oliver in Hook. Ic. Pl.* vol. xiv. p. 22, t. 1331.

Cephalanthus natalensis is the only described African species of the genus, all others being Asiatic and American; a supposed Madagascar congener being referable to the allied genus *Adina*, which has more than one ovule in each ovarian cell. One species, *C. occidentalis*, Linn., the American Button-wood or Button tree, was early introduced into this country by Peter Collinson, in 1735. It is a very common North American shrub, extending across the whole continent, and remarkable as being the only woody plant of the vast natural order to which it belongs, that is a native of temperate North America. As far as I am aware no properties of economic value have been attributed to any species of the genus, except the present, to the seeds of which the name of Quinine fruit was attached by the sender; and the fruit of which is edible.

C. natalensis is a native of the mountainous regions of Natal, the Transvaal, and Basutoland, at elevations of 3000 to 4–5000 ft. It was discovered by the collector Gerrard about forty years ago, and has since been collected by Dr. Atherstone, and by Messrs. Medley Wood and E. E. Galpin, the latter of whom describes the fruit as resembling a strawberry, and edible. It was first introduced by Mr. Bull, who sent a specimen to Kew, to be named as a plant yielding a good edible fruit. The plant from which our figure was made was raised from seed received in 1886 from W. J. Horn, Esq., of Ousley Road, Balham, who collected the seeds with those of various other interesting plants, notably the showy *Protea rhodantha*, figured t. 7331. Mr. Watson informs me that it forms a compact little shrub, and flowers freely in spring in the Temperate House of the Royal Gardens.

Descr.—A small, much-branched shrub, with rather stout, terete, hirtellous branches and branchlets. *Leaves* about an inch long, ovate, acuminate, acute, or rarely obtuse, dark green, glabrous and shining above, pale beneath with red midrib and nerves, and with hairy glands at the axils of the nerves and midrib. *Flowers* very numerous, in globose, terminal, peduncled heads, one to one and a half inches in diameter; peduncle one to two inches long, stout, decurved, hirtellous, bearing one or two scars of fallen bracts. *Calyces* minute, densely packed, sessile on a fleshy receptacle, surrounded by several short, clavate, truncate, ciliate bracteoles, each of which has an oblong, dorsal gland; tube of calyx produced above the ovary, 5-toothed, ciliate. *Corolla* about one-third of an inch long; tube rose-red, glabrous, slender below the middle, then obovoid, narrowly funnel-shaped, pubescent within, as are the five short ovate, spreading, green lobes. *Stamens* five, inserted within the mouth of the corolla; filaments very short, inserted at the entire base of the oblong anther; connective shortly produced. *Ovary* 5-celled; style slender, exserted, stigma clavate; ovules one in each cell, pendulous. *Fruit* succulent, edible.—*J. D. H.*

Fig. 1, Portion of back of leaf with the gland at the axil of the nerve and costa; 2, calyces and a corolla; 3, section of portion of the receptacle of the head, with 3 ovaries, one cut vertically, showing the ovules, also the bracteoles at the base of the two other ovaries; 4, a bracteole; 5, upper part of corolla laid open:—*All enlarged.*

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Vincent Brooks, Day

TAB. 7401.

MUSA HILLII, *F. Muell.*

Native of Queensland.

Nat. Ord. SCITAMINEÆ.—Tribe MUSEÆ.

Genus MUSA, *Linn.; (Benth. et Hook. f. Gen. Plant.* vol. iii. p. 655.)

MUSA (Eumusa) *Hillii*; caudice elato robusto stolonifero, foliis longiuscule petiolatis lineari-oblongis patulis basi cuneatis, spica valida erecta densiflora, bracteis ovatis cymbiformibus flavo-viridibus apicibus obtusis brunneis, fl. masc. perplurimis 2-pollicaribus, calycis leviter curvi dentibus brevibus obtusis lateralibus majoribus appendice fusiformi ruguloso instructis, corolla lineari-oblonga subacuta, fl. fem. ovario ovoidei 3-gono perianthio masculo breviore, stigmate majusculo trilobo, baccis densissime confertis ovoideis 3-gonis truncatis, seminibus perplurimis parvis angulosis valde depressis.

M. Hillii, *F. Muell. Fragment.* vol. ix. p. 169. *Baker in Ann. Bot.* vol. vii. p. 217 *in Gard. Chron.* 1893, ii. p. 743, *in Kew Bulletin*, 1894, pp. 239, 246.

Four species of Plantain are now known to inhabit tropical Australia, all of them endemic, namely, *M. Banksii*, *F. Muell. Fragm.* vol. iv. p. 132 (*M. Banksiana*, Kurz in Journ. Agr. Hort. Soc. Ind. N.S. vol. v. (1878), p. 164); *M. Fitzalani*, F. Muell. l.c. vol. ix. p. 188; *M. Charlioi*, W. Hill, Rep. Brisbane Bot. Gard. 1874 (undescribed), and that here figured. Whether any of these are identical with described species from the Malay or the Pacific Islands is not determinable until these are better known; and as it is only by comparison under cultivation, or by very carefully executed drawings that the members of this noble genus can be determined, it will probably be many years before this can be realized. Much has been done of late towards a knowledge of the Plantains and Bananas by summaries of the known species which have been drawn up by Mr. Baker, and published in the "Annals of Botany," and by a paper in the *Kew Bulletin*, both cited above. From these it appears that about thirty-five species are more or less known, though possibly some of them are synonymous, or founded in error. Of these nineteen are now in cultivation at Kew, but only six of them have hitherto been figured in this magazine.

FEBRUARY 1ST, 1895.

Seeds of *M. Hillii* were received at Kew from F. M. Bailey, Esq., F.L.S., Colonial Botanist, Queensland, in March, 1889, from which the plant here figured was raised. It flowered in the Palm House of the Royal Gardens in December, 1893.

Descr.—*Caudex* attaining 30 ft. in height, and 18 inches in diameter at the base, stoloniferous, cylindric. *Leaves* as of *M. sapientum*, attaining 15 feet in length, base cuneate; petiole long. *Spike* erect, three to four feet high, cylindric. *Bracts* six inches long and upwards, ovate, obtuse, pale yellow-green, with a brown tip. MALE FL. very many in a bract, two inches long, narrow, slightly curved, sub 4-angled, pale yellowish. *Calyx-teeth* short, obtuse, two lateral rather the largest, these and the median tipped terminating in thickened rugose spindle-shaped prolongation of the midrib; two intermediate much the smallest. *Petals* linear-oblong, obtuse, one-fourth shorter than the corolla. *Anthers* pale pink, about as long as the filaments. FEM. FL. pentandrous. *Perianth* shorter than in the male. *Ovary* short, ovoid, 3-gonous; style clavate, stigma three-lobed. *Fruit* two to two and a half inches long, sessile, ovoid, acutely angled, truncate, fleshy. *Seeds* very many, $\frac{1}{4}$–$\frac{1}{3}$ in. diam., much depressed; testa black.—*J. D. H.*

Fig. 1, Male flower; 2, the same, with the calyx narrowed; 3, anther, *all enlarged*; 4, bract and male flower; 5, fem. flower; both of *nat. size*; 6, *reduced* view of whole plant.

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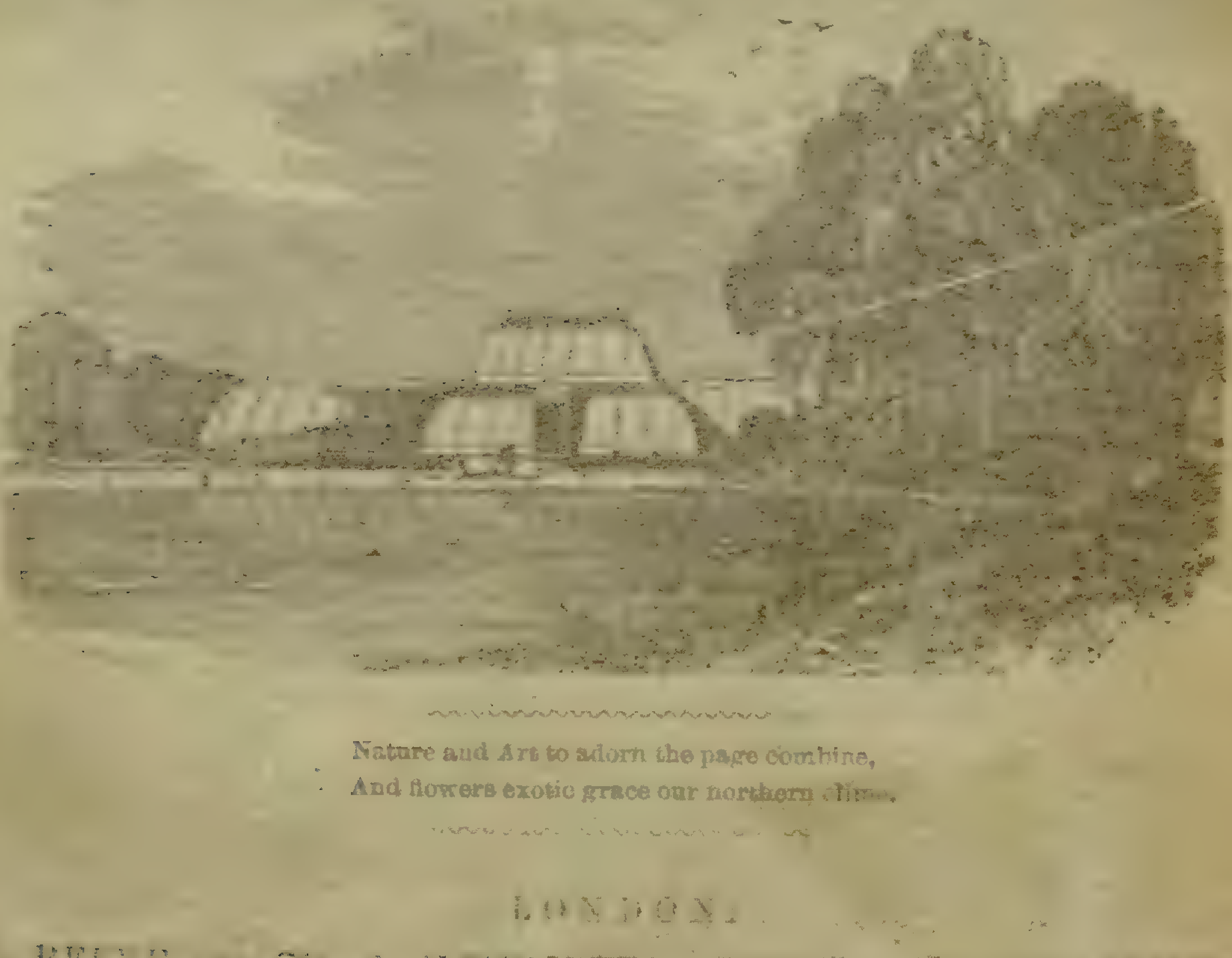

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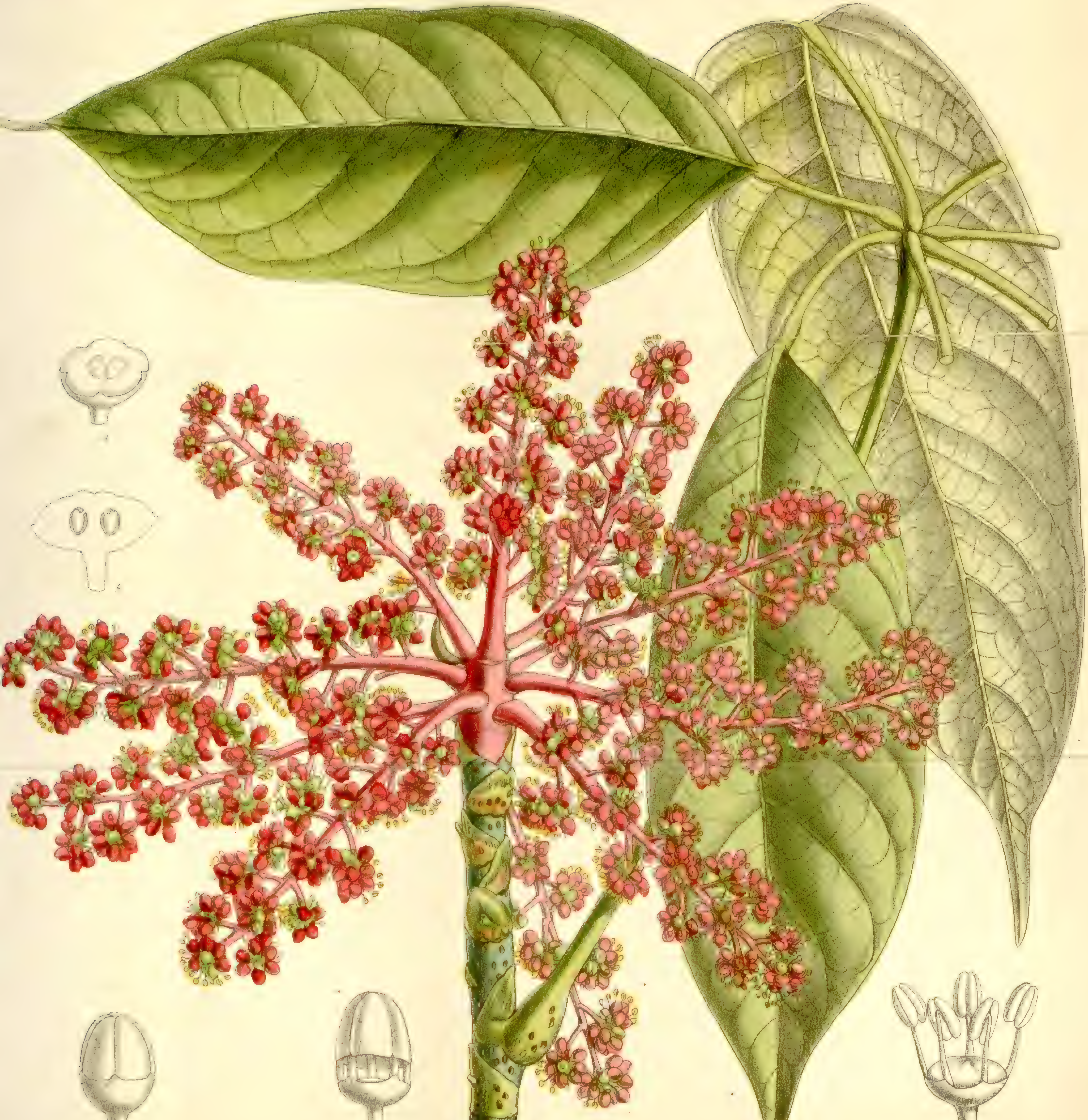

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TAB. 7402.

HEPTAPLEURUM VENULOSUM, var. *erythrostachys.*

Native of tropical Asia.

Nat. Ord. ARALIACEÆ.

Genus HEPTAPLEURUM, *Gærtn.; (Benth. & Hook. f. Gen. Plant.* vol. i. p. 912.)

HEPTAPLEURUM *venulosum*; arbor parva erecta v. frutex subscandens, ramulis robustis, foliis digitatis longe petiolatis, foliolis 7–9 petiolulatis elliptico-v. ovato-oblongis obtusis acutis v. obtuse subcaudato-acuminatis glaberrimis, basi cuneatis rotundatisve, supra læte viridibus nervulis reticulatis prominulis, stipulis ima basi petioli adnatis, paniculæ amplæ pedunculo gracili v. robusto brevi v. elongato, ramis verticillatis glabris puberulisve, capitulis florum breviter v. longius pedunculatis, floribus 4–5-meris brevissime v. longius pedicellatis subpolygamis calycis patellæformis limbo obscure dentato, petalis calyptratim cohærentibus obtusis, staminibus 4–5, ovario disco tumido coronato, stylo depresso obscure 4–5-lobo, baccis parvis ovoideis flavis 4–5-locularibus.

H. venulosum, *Seem. in Journ. Bot.* iii. (1865), 80. *Brand. For. Fl. N. W. & Centr. Ind.* p. 249. *Kurz For. Fl. Brit. Burm.* i. 538. *Clarke in Hook. f. Fl. Brit. Ind.* ii. 729. *Benth. Fl. Austral.* iii. 384. *Beddome Forester's Man. S. India*, p. cxxii.

H. ellipticum, *Seem. l. c.*

PARATROPIA venulosa, *Wight & Arn. Prodr. Fl. Penins. Ind. Or.* p. 377. *Wight Illustr. Pl. Ind. Or.* vol. ii. p. 62, t. 118. *F. Muell. Fragmenta*, vol. iv. p. 121.

P. elliptica *v.* macrantha, *Miq. Fl. Ind. Bat.* i. pt. i. p. 756.

HEDERA macrophylla, terebinthacea et venosa, *Wall. Cat. n.n.* 4918, 4920 *partim*, 4923.

SCIADOPHYLLUM ellipticum, *Blume Bijdr.* p. 878. *DC. Prodr.* vol. iv. p. 260.

ARALIA digitata, *Roxb. Hort. Beng.* p. 22; *Fl. Ind.* vol. ii. p. 107.

A. Moorei, *F. Muell. l. c.* vol. ii. p. 108.

UNJALA, *Rheede Hort. Malab.* vol. vii. t. 28.

VAR *erythrostachys*, paniculæ robustæ ramis ramulis petalisque rubellis pedunculis pedicellisque brevibus.

Under the name of *Heptapleurum venulosum*, one or more large species of the genus, ranges from Kumaon, in the subtropical Western Himalaya, eastwards throughout the range, to Burma, and southwards in moist forests to Malabar, the Circars, and Singapore; thence extending

to the Malayan Islands and tropical Australia. It has not, however, been detected in Ceylon. As might be expected, with so wide a range, it varies much in habit, and in the size of the leaves and flowers, and it is very possible that more than one species is included under the above name. Amongst the very large series of Indian specimens that I have examined, I find the greatest differences (and they are very great) to be in the stoutness or the contrary of the rachis and branches of the panicle, in the length and stoutness of the peduncles of the head of flowers, and of the pedicels of the flowers themselves. In the Himalaya the peduncles and pedicels are for the most part as represented in the plate, but in Malabar, Burma, Penang, and in Wight's figure all the ramifications of the panicle are very slender and distinct, the peduncles attain an inch long, and the pedicels half an inch. The flowers, too, vary greatly in size. In no case do I find any note of the colour of the panicle and its ramifications being red, as in the plant here figured; in all that I saw in the Himalaya and Khasia Hills, I remember no colour but green. Wight, however, figures these as violet-blue, and the flowers as green.

I regret not being able to give the native country of var. *erythrostachys*. The specimen figured is from a plant cultivated in the Temperate House of the Royal Gardens, presented by M. de Falbe, Danish Minister, from the Villa Valetta, Cannes. It flowered in April, 1894. The species is, as Mr. Watson informs me, not uncommon in such gardens as can afford it house-room, but it seldom flowers.

Descr.—A small, diffusely branching tree, or bush, with rooting lower branches, or sometimes a woody climber; branchlets stout, dark green, dotted with white. *Leaves* alternate; petiole 4–8 inches long, terete; leaflets 7–9, whorled, 5–7 inches long, elliptic- or ovate-oblong, obtuse, acute, or subcaudately obtusely acuminate, base cuneate or cordate, reticulate on both surfaces; petiolule 1–1½ in. *Panicle* on a short, stout, slender peduncle, glabrous or puberulous; branches subverticillate, 3–6 inches long, stout or slender, spreading, bearing throughout their length, peduncled, globose heads of flowers about $\frac{1}{6}$–$\frac{1}{3}$ in. diam. *Flowers* minute, polygamous; pedicels short or long *Calyx* broadly cupular, margin obscurely 5-toothed. *Petals* short, obtuse, cohering in a deciduous operculum. *Stamens* 4–5. *Disk* tumid, with an obscurely 4–5-lobed very depressed central style.—*J. D. H.*

Fig. 1, Flower; 2, the same with the operculate corolla raised; 3, flower with the petals removed; 4, calyx, ovary and disk showing the style; 5, vertical section of ovary:—*All enlarged.*

M.S del. J.N Fitch, lith.

Vincent Brooks Day &

TAB. 7403.

DISA SAGITTALIS.

Native of South Africa.

Nat. Ord. ORCHIDEÆ.—Tribe OPHRYDEÆ.

Genus DISA, *Berg.; (Benth. & Hook. f. Gen. Plant.* vol. iii. p. 630.)

DISA (Coryphæa) *sagittalis*; foliis synanthiis, radicalibus pluribus oblanceolatis acutis, caule erecto vaginis acutis membranaceis arcte vestito, racemo oblongo cylindraceo v. subcorymbiforme, floribus patentibus puberulis pallide lilacinis, bracteis ovario brevioribus, sepalis lateralibus oblongis acutis, postico erecto e basi tubuloso repente in laminam patulam alte 2-lobam recurvam dilatato, lobis cuneatis basi tortis, calcare recto elongato conico, petalis erectis linearibus basi extus in auriculam magnam dilatatis, labello lineari undulato, rostello brevi rotundato concavo, polliniarum glandula 2-loba.

D. sagittalis, *Sw. in Kongl. Vetensk. Acad. Nya Handl.* vol. xxi. (1800), p. 252. *Lindl. Gen. & Sp. Orchid.* p. 350. *Bolus Ic. Orchid. Austro-African*, i. t. 32.

Orchis sagittalis, *Linn. f. Suppl.* p. 399.

Satyrium sagittale, *Thunb. Prodr. Pl. Cap.* p. 5.

No genus of terrestrial Orchids requires for its satisfactory elucidation good drawings and analysis more than does *Disa*; for the species are very numerous, and the structural differences and complicated features of its column and sepals are greater, I think, by far, than in any other genus of the Order. To which must be added the difficulty of describing, in intelligible language, the irregular and often bizarre and even deceptive characters of these organs, which, in dried specimens especially, are apt to lead the systematist far astray. Considering his materials and opportunities, Lindley's work on the genus in his "Genera and Species of Orchids," is remarkably skilful; but until Mr. Bolus took the field and published his masterly researches in the "Orchids of the Cape Peninsula" and "Icones Orchidearum Austro-Africanarum" hardly a dozen of the 109 described species could be said to be satisfactorily known.

Disa sagittalis is figured and described in the last mentioned of Mr. Bolus' works, and a comparison of his results with those given in our figure shows a remarkably

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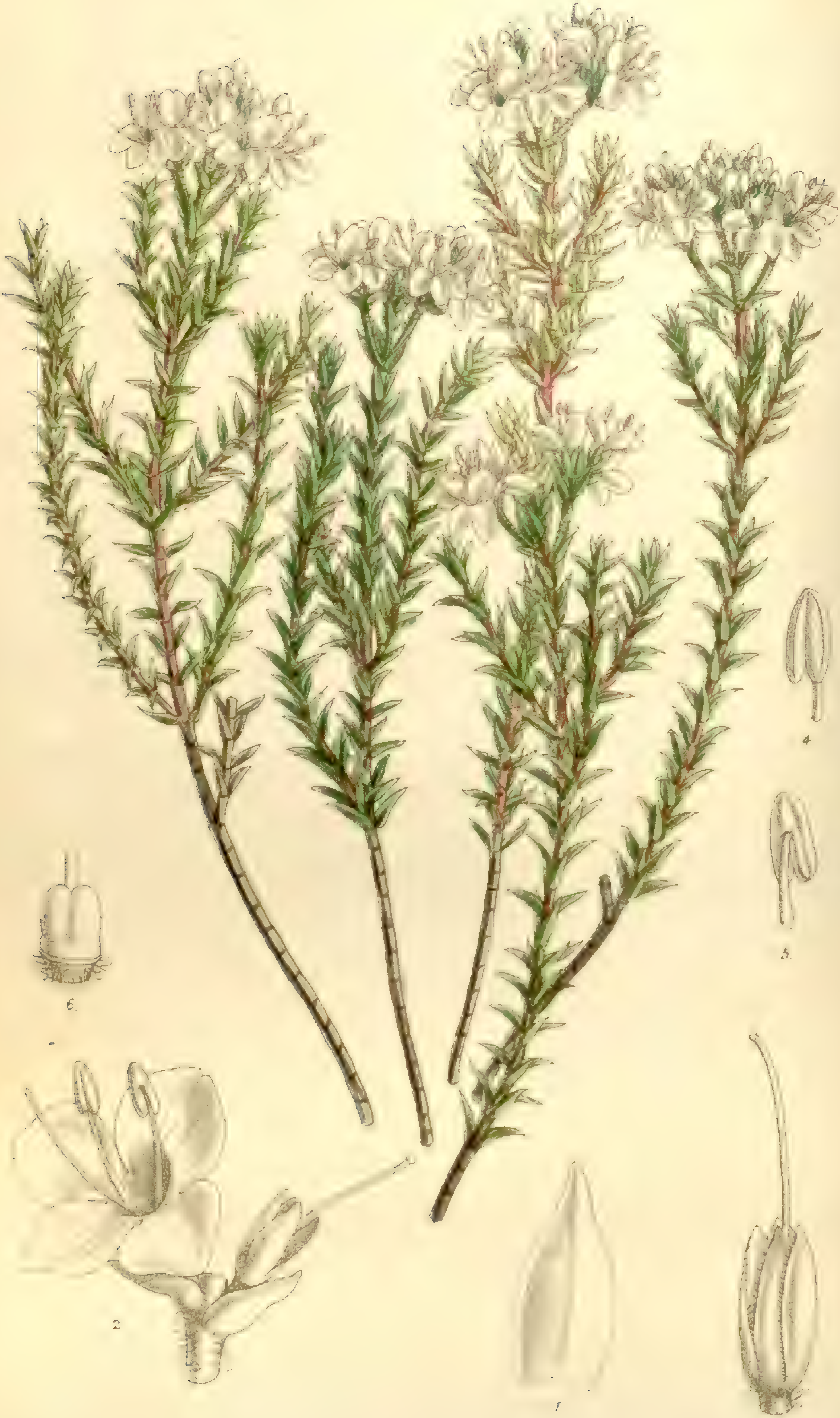
perfect agreement in all essentials of structure. The chief differences are, the greater luxuriance of the cultivated specimen, its more numerous suberect, oblanceolate bright green leaves, its reticulated sheaths on the brown stem, its pale lilac sepals and petals; also the spur of its posticous sepal is rather longer and narrower, and the lamina is quite entire. The species is referred to the section *Coryphæa*, both by Lindley and Bolus, in which there should be two glands of the pollinia, whereas a single 2-lobed one is (correctly) represented in Bolus' figures and in that here given. *D. sagittalis* is a native of both the South Western and South Eastern regions of South Africa, extending in the East to Natal. The specimen represented was sent to the Royal Gardens by H. J. Elwes, Esq., F.L.S., from his gardens at Colesborne, Andoversford, which have contributed so many rarities to this work, and amongst them more terrestrial Cape Orchids than has any other contributor. It flowered early in May of the present year.

Descr.—Tuber fusiform. *Leaves* radical, 2–4 inches long, oblanceolate, bright green. *Stem* 6–8 inches high, dark brown, clothed with membranous, acute, reticulate sheaths. *Flowers* few or many, minutely puberulous, in a subcorymbiform raceme; about ⅔ of an inch long from the tip of the lip to that of the dorsal sepal, pale lilac, with red streaks on the petals and lip; pedicel spreading, with the ovary an inch long; bracts shorter than the ovary. *Sepals*, lateral oblong, acute, deflexed; posticous, erect, tubular below, and produced into a straight, conical, acute spur, expanded above, and 2-lobed, lobes twisted at the base, fan-shaped, with the margins recurved and entire. *Petals* erect, linear, with each a broad, rounded basal auricle. *Lip* linear, waved. *Column* very short, depressed, with a short, broad, rounded, concave rostellum. *Gland of the pollinia* 2-lobed. *Ovary* straight.—*J. D. H.*

Fig. 1, Flower seen in front and 2 from the back; 3, posticous sepal; 4, petals and lip, 5 dorsal and 6 lateral view of column; 7, pollinia:—*All enlarged.*



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TAB. 7404.

VERONICA LOGANIOIDES.

Native of New Zealand.

Nat. Ord. SCROPHULARINEÆ.—Tribe DIGITALEÆ.

Genus VERONICA, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 964.)

VERONICA (Hebe) *loganioides*; fruticulus humilis, basi decumbens, dein erectus, ramis virgatis, cortice fusco, ramulis pedunculisque laxe pilosis, foliis $\frac{1}{6}$–$\frac{1}{4}$ poll. longis laxe densiusve imbricatis patenti-recurvis ovatis acuminatis crassiusculis carinatis viridibus integerrimis v. utrinque pauci-denticulatis, floribus in racemulis ad apices ramorum corymbose congestis dispositis oppositis brevissime pedicellatis, bracteis ovato-oblongis calycibus brevioribus glaberrimis, sepalis oblongis obtusis carinatis ciliolatis, corolla $\frac{1}{3}$ in. diam. alba, tubo brevissimo, lobis ovato-rotundatis, filamentis mediocribus, antheris pallidis, ovario glaberrimo apice 2-lobo.

V. loganioides, *Armstr. in New Zeald. Country Journal*, vol. iii. *et in Trans. New Zeald. Instit.* vol. xiii. (1881) 352, and p. 359.

Veronica loganioides is described by its author as "a most singular plant, quite different in appearance from any known *Veronica* * * * the corolla seems to approach that of *V. linifolia*, but the aspect of the plant is more that of *V. tetragona*, though the leaves are not connate at the base." And he adds, "until the fruit is obtained the position and relationship cannot be determined." Judging from the ovary, I think that it may be safely referred to the section *Hebe*, or the subgenus *Korronika* of Armstrong, which includes all the *Hebes*, except those with scale-like, appressed leaves, to which he has given the subgeneric name of *Pseudo-Veronica*. Its nearest affinity is probably with *V. epacridea* ("Handb. of N. Zeald. Flora," p. 213), a prostrate, tortuous species, with uniform small leaves in opposite pairs, and free at the base; which species, however, differs widely, having broadly, obovate-oblong obtuse leaves, and a corolla with a long tube. Mr. Armstrong describes the corolla of *V. loganioides* as white, with pink stripes; but in all the

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cultivated specimens that I have seen they are pure white. It appears to be a very rare plant, a native of the Southern Island, and the only native specimens in Kew Herbarium, were sent to Kew by Thos. Kirk, Esq., F.L.S., of Wellington. Mr. Armstrong gives as habitats the Rangitata Valley, where he collected it himself, and the Clyde Valley, alt. 5–6000 ft., *Mr. W. Gray*.

The specimen figured flowered in the Rockery of the Royal Gardens, in June, 1893, and the same plant has been received from the Royal Gardens of Edinburgh, under the name of *V. epacridea*.

Descr.—A dwarf shrub, six to twelve inches high, with many slender, terete, erect branches from a decumbent base. *Stems* hardly as thick as a crow-quill, branched above, naked, but annulate with scars below, leafy above, as are the branches. *Leaves* quadrifarious, in opposite, rather close-set pairs, about one-sixth of an inch long, erecto-patent, ovate-lanceolate, subacute, coriaceous, keeled, dull green, shining. *Flowers* sessile, small, in subterminal opposite, corymbiform spikes; peduncle one half to two-thirds of an inch long, sparsely hairy; bracts lanceolate, shorter than the calyx. *Calyx* segments erect; linear-oblong, obtuse, coriaceous, margins ciliolate. *Corolla* one-fourth to nearly one-third of an inch in diam., white; tube not longer than the calyx; posticous and lateral lobes orbicular-ovate, posticous rather the largest; anticous much the smallest, ovate. *Filaments* about as long as the corolla lobes; anthers oblong, erect, pale. *Ovary* glabrous, style slender.—*J. D. H.*

Fig. 1, Leaf; 2, portion of spike; 3, calyx and style; 4 and 5, anthers; 6, ovary:—*All enlarged.*

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TAB. 7405.

WELDENIA CANDIDA.

Native of Mexico and Guatemala.

Nat. Ord. COMMELINACEÆ.—Tribe TRADESCANTIEÆ.

Genus WELDENIA, *Schult.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 855.)

WELDENIA *candida*; herba erecta, puberula, tuberosa, caule simplici folioso, foliis linearibus oblongisve acutis subsessilibus basi angustatis subtus alte 5–∞-costatis, costis puberulis pallide viridibus supra concavis fasciculis pilorum raris albis conspersis, vagina laxa cylindracea membranacea, floribus terminalibus fasciculatis sessilibus albis, calycis tubo superne fisso, limbo 5-fido puberulo, corollæ tubo elongato gracili calyce duplo longiore, limbi ampli segmentis 3 orbicularibus patentibus, staminibus 6 filamentis gracilibus exsertis, antheris oblongis, ovario lineari-oblongo 3-loculari, stylo filiformi, stigmate 3-lobo, ovulis in loculis paucis subbiseriatim superpositis.

W. candida, *Schult f. in Flora,* vol. xii. (1829), p. 3, t. i. A. *Roem. & Sch. Syst.* vol. vii. p. 1136. *Hassk. Commel. Ind.* p. 3. *Baker in Journ. Linn. Soc.* vol. xvii. p. 454. *Clarke in DC. Monogr. Phanerog.* vol. iii. p. 319. *Kew Bulletin* (1894), p. 135.

W. Schultesii, *Schlecht. Hort. Halens.* p. 14.

Lampra volcanica, *Benth. Pl. Hartweg,* p. 95; *& in Hook. Ic. Plant.* vol. xiii. p. 28, t. 1236.

Rugendasia majalis, *Ehrenb. mss.*

The remarkable plant here figured, which is monotypic, was discovered by Ehrenberg, between Chico and Real del Monte in Mexico; Karwinsky subsequently found it in the Nevado de Tolucca, and Schiede on the Cuesta de Catingoa. Hartweg, in 1840, collected it in the crater of the Volcan de Agua in Guatemala, and specimens from the same locality have lately been received at Kew from J. Donnell Smith, Esq., an excellent botanist. The following account is given in the *Kew Bulletin* cited above. "Last year Mr. Audley C. Gosling, Her Majesty's Minister to Central America, informed us that his sons had "made the ascent of the Volcan de Agua, and at the bottom of the crater had found bulbs of the plant which Mr. Donnell Smith informs me is *Weldenia candida*. . . . I have planted these bulbs here, and they flower to perfection at 9000 ft. lower altitude than where found. The daily

range of the thermometer in this city (Guatemala) is from 9°-22° centigr. (48°–71° Fahr.), and in the crater of de Agua it is from —6° to 11° centigr. (21°–51° Fahr.). If you have not the plant in cultivation, I shall be happy to send you some bulbs. Mr. Gosling's offer was gladly accepted, and in September, 1893, the plants were received at Kew, where they flowered in April in a cool greenhouse."

Descr.—*Tubers* very many, tufted, narrowly fusiform, 2–3 inches long, fleshy. *Stems* 1–8 inches high, as thick as a swan's quill or less, simple or divided, leafy at the tip, the leaves passing below into tubular, hyaline, striate pale sheaths. *Leaves* 2–6 by $\frac{1}{4}$–$\frac{1}{2}$ in., crowded towards the top of the stem, spreading and recurved, from oblong to linear, or narrowly oblanceolate, acuminate, ecostate nerveless smooth above, and glabrous, except for a few small scattered superficial tufts of white cellular hairs; beneath pubescent on five or more prominent ribs; sheath loose, cylindric, membranous. *Flowers* sessile, in terminal tufts amongst the leaves. *Calyx* an inch long, tubular, pale green, split to about the middle, tip with 3 very narrow teeth. *Corolla* pure white; tube twice as long as the calyx, slender, cylindric, white; limb one and a half inches in diameter, 3-partite; segments orbicular, spreading. *Stamens* 6, inserted at the mouth of the corolla, filaments slender, about half as long as its lobes; anthers basifixed, horizontal, ovate-oblong, yellow, base cordate, slits lateral. *Ovary* sessile, columnar, 3-groved, 3-celled; style filiform; stigma exserted, 3-lobed, lobes papillose; ovules few in each cell, biseriately superposed. —*J. D. H.*

Fig. 1, Epidermis of leaves with tufts of hairs; 2, hairs from the same; 3, tip of calyx; 4, stamen; 5, stigma; 6, ovary; 7, the same, with one cell exposed:—*All enlarged.*

7406.

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TAB. 7406.

SCHINUS DEPENDENS.

Native of South America.

Nat. Ord. ANACARDIACEÆ.—Tribe ANACARDIEÆ.

Genus SCHINUS, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. I. pp. 422, 426.)
(SCHINUS et DUVAUA.)

SCHINUS (Duvaua) *dependens*; frutex ramis strictis flexuosisve extimis spinosis, foliis parvis breviter petiolatis oblongis obovatisve glaberrimis integerrimis v. serrato-dentatis, floribus polygamis in racemos axillares folia subæquantes dispositis, bracteis ovatis minutis ciliolatis 1–2-floris, alabastris globosis, calycis lobis ovatis ciliolatis, petalis obovato-oblongis unguiculatis, ovario globoso glabro, drupis globosis.

S. dependens, *Ortega, Decad.* vol. viii. p. 102. *L. March. Anacard.* p. 164. *Engler in Mart. Fl. Bras.* 387, *et in Alph. DC. Monog. Phanerog.* vol. iv. p. 339, 538.

S. Huygan, *Molina, Saqq. Chili.* Ed. I. 169, 355.

S. Bonplandianus, *L. March. l. c.*

DUVAUA dependens, *DC. Prodr.* vol. ii. p. 74. *Kunth in Dict. Sc. Nat. Ic.* t. 47. *Hook. Bot. Misc.* vol. iii. p. 176. *C. Gay Fl. Chil.* vol. ii. p. 42. *Lindl. Bot. Reg.* t. 1573.

D. ovata et D. longifolia, *Lindl. Bot. Reg.* t. 1568, et vol. xv. (1843), t. 59.

D. dentata, *DC. Prodr. l. c.*

D. cuneata, et D. inebrians, *Gill. ex Hook. & Arn. in Hook. Bot. Misc.* vol. iii. p. 176.

D. fasciculata et D. præcox, *Griseb. in Goett. Abhandl.* vol. xix. (1874), p. 116.

D. ornata (*sphalm. pro* ovata) *Philipp. f. Cat. Pl. Vasc. Chil.* p. 47.

D. polygama, *Kunth in Ann. Sc. Nat. Ser.* i. vol. ii. p. 340.

D. spinescens, *Tenore Cat. Ort. Nap.* p. 85.

Amyris polygama, *Cav. Ic.* vol. iii. p. 20, t. 239.

Professor Engler, in his able monograph of the *Anacardiaceæ*, has shown that the long-established genus *Duvaua*, of Kunth, can only be regarded as a subgenus of the older *Schinus*. Though previously placed wide apart in the Order, the only character by which they could be separated was that of leaves simple in *Duvaua* and compound in *Schinus*, which of itself is insufficient for the establishment of two genera.

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S. dependens has a very wide range in the west coast of South America, from Valdivia in latitude 40° S. to 19° S. in Bolivia, where it ascends to 13,000 ft. elevation. It also extends over a great portion of the Argentine Republic, Paraguay and Uruguay. Its northern limit in the east coast of America is the province of Rio Grande do Sul, in the extreme south of Brazil. According to the late Dr. Gillies (confirmed by C. Gay) the Indians of the Mendozan Andes distil an intoxicating liquor from the fruit. The bark yields a balsam used as a vulnerary, and other parts of the plant afford medicines formerly much in use in Chili. Its native name is Huingan.

S. dependens was introduced into the Garden of the Royal Horticultural Society before the year 1833, when it was figured in the "Botanical Register" by Lindley, who states that it will not bear the climate of London without protection from frost, but would probably succeed in crevices of rocks in Devonshire and Cornwall. The specimen here figured is from a plant raised at Kew from seeds sent from the Botanical Gardens of Santiago, Chili, in 1885; and which has proved to be perfectly hardy. It flowers in May.

Descr.—A shrub or small tree, 12–15 ft. high, abundantly flowering, with rigid branches, spinous at the tips; or with more or less drooping branches in favourable situations; bark brown. *Leaves* one-third to nearly one inch long, very shortly petioled, oblong or obovate, more or less coriaceous, quite entire or more or less toothed, dark green above, pale beneath. *Flowers* yellow, $\frac{1}{12}$ in. diam., produced in great numbers of axillary, very shortly peduncled racemes, about as long as the leaves; bracts minute, ovate, ciliolate, 1–3-fld.; pedicels about one-twelfth of an inch long, glabrous. *Calyx* minute, 4-lobed; lobes rounded, ciliolate. *Petals* obovate-spathulate, spreading. *Stamens* in the male fl. nearly as long as the petals, anthers large; in the female reduced to minute staminodes. *Disk* urceolate, 8–10 lobed. *Ovary* glabrous. *Drupe* pisiform.—*J. D. H.*

Fig. 1, Portion of raceme and flowers; 2 and 3, stamens; 4, disk:—*All enlarged.*

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BY

SIR JOSEPH DALTON HOOKER, M.D., K.C.S.I., C.B., F.R.S., F.L.S.
Late Director of the Royal Botanic Gardens of Kew.

Nature and Art to adorn the page combine,
And flowers exotic grace our northern clime.

LONDON:
L. REEVE AND CO., 6, HENRIETTA STREET, COVENT GARDEN.
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ROYAL BOTANIC SOCIETY, 1895.

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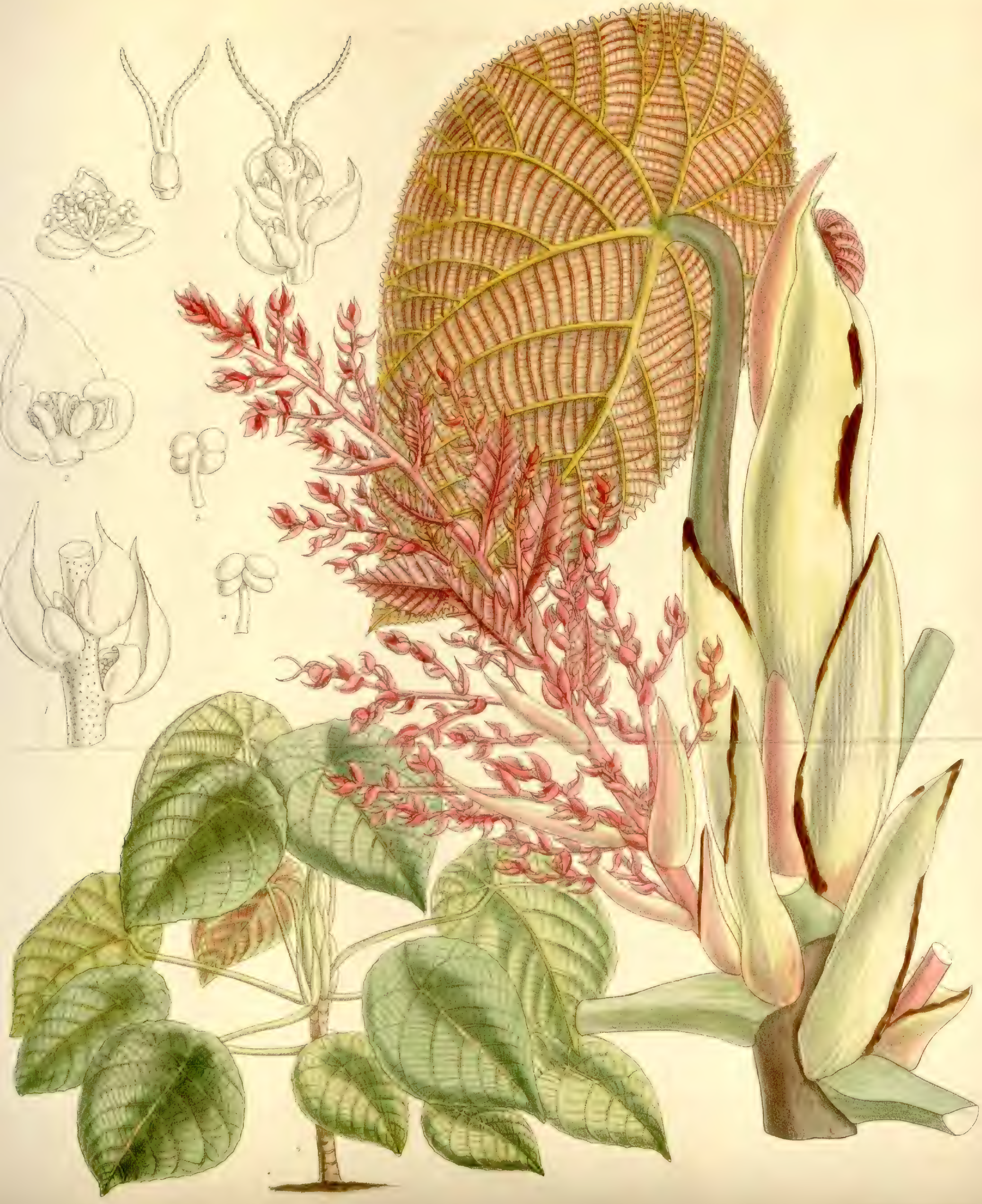

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TAB. 7407.

MACARANGA PORTEANA.

Native of the Philippine Islands.

Nat. Ord. EUPHORBIACEÆ.—Tribe CROTONEÆ.

Genus MACARANGA, *Thou.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 320.)

MACARANGA (Eumacaranga) *Porteana*; caule erecto cylindraceo cicatricato, foliis amplis longe petiolatis peltatis orbiculari-ovatis acutis calloso-crenulatis ciliolatis supra læte viridibus nervis aureis, immaturis supra araneosis, subtus rufescentibus puberulis costa nervisque validis viridibus, nervulis transversis perplurimis elevatis rubris, stipulis maximis oblongis erectis cymbiformibus pallide flavo-virescentibus, paniculis axillaribus petiolo brevioribus breviter pedunculatis roseis hic illic foliiferis, bracteis primariis (basi ramorum inferiorum) pollicaribus ovato-lanceolatis acutis, superioribus linearibus, floralibus parvis cymbiformibus incurvis, bracteolis linearibus incurvis obtusis, floribus minutis sessilibus, masculis perplurimis polyandris, femineis hermaphroditisve ad apices ramulorum raris, perianthii segmentis ovatis, staminibus confertis, antheris 4-lobis, ovario oblongo, stylis 2 elongatis subulatis stigmatosis.

M. Porteana, *E. Andrè in Rev. Hortic.* (1888), p. 176, fig. 36.

Mappa Porteana, *Hort. ex W. Wats. in Gard. Chron.* (1894), vol. ii. p. 284, *cum Ic. et* Suppl. (1894) Sept. 8th.

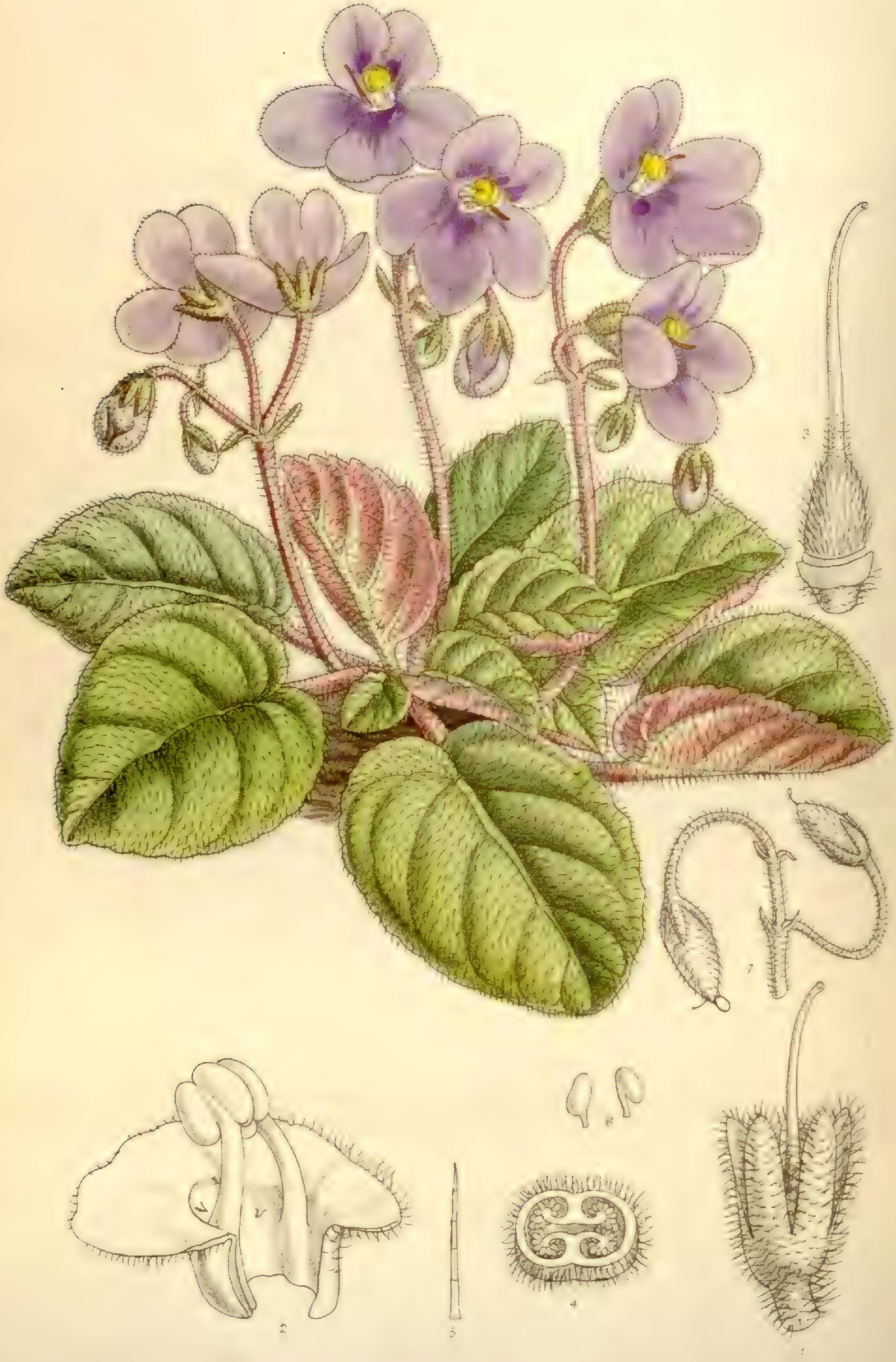
As grown in a large pot standing in the tank of the Victoria House at Kew, this forms one of the most stately attractions of the many noble plants that surround it. From a stout erect stem four-and-a-half feet high, clothed above with the large erect, pale stipules, are given off long bold, bright green petioles, two to three feet long, supporting peltate leaves, nearly three feet broad, of a lustrous dark satin green colour above, traversed by golden nerves; beneath the young leaves are of a rusty-red hue, beautifully reticulate, with strong green nerves, and innumerable transverse parallel red nervules; the older leaves are uniformly pale green beneath. The inflorescence, consisting of axillary panicles, is of pale red, insignificant flowers.

Macaranga is a large tropical genus, consisting of upwards of eighty species, confined to the old world, and chiefly Malayan. *M. Porteana* was discovered in the Philippine Islands by M. Marius Porté, a French Botanist, who collected there in 1860–5, and by him it was introduced into the Jardin de Plantes, Paris, whence a young plant was sent to the Royal Gardens, Kew, in 1892. The latter was only a foot high when received, but grew so rapidly as to attain the dimensions mentioned above by April, 1893, when it flowered.

Descr.—*Stem* woody, 4–4½ ft. high in the plant figured, erect, cylindric, dark brown, marked with triangular scars of fallen leaves. *Leaves* at the tip of stem, peltate, orbicular-ovate, acute, crenulate, dark green above, with golden nerves, young rosy beneath; petiole two to three feet long, horizontally spreading, stout, terete, green; stipules three to six inches long, free, concave, linear-oblong, acute, erect, very pale yellowish green, with rusty-brown withering edges and tips. *Panicles* axillary, shorter than the petioles, erect, pyramidal, laxly-branched, pale reddish, bearing here and there on the rachis small, ovate, acute, deeply toothed, reddish leaves, which are not peltate; bracts at the base of the lower branches an inch long, ovate-lanceolate, acute, concave, upper gradually smaller. *Flowers* sessile on the suberect branches of the panicle, bracteate and bracteolate, all male, except an occasional terminal fem. or bisexual; floral bracts $\frac{1}{6}$ in. long, boat-shaped, incurved, acuminate, 1–2-fld.; bracteoles two, lateral, much smaller than the bracts, linear, obtuse. MALE FL.; sepals 3, ovate; stamens numerous, filaments shorter than the sepals; anthers 4-lobed, 4-celled. FEM. FL.; perianth of the male; stamens fewer; ovary oblong, with two long subulate styles.—*J. D. H.*

Fig. 1, Portion of branch with male inflorescence; 2, male branch, bracteoles and flowers; 3, male flowers; 4 and 5, stamens; 6, tip of branch with four male and a bisexual terminal flower:—*All enlarged.*

7408.



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Tab. 7408.

SAINTPAULIA ionantha.

Native of Eastern tropical Africa.

Nat. Ord. Gesneraceæ.—Tribe Cyrtandreæ.

Saintpaulia, *Herm. Wendl. in Wittmack Gartenflor.* vol. xlii. (1893), p. 322, t. 1391, and *Abbild.* 66.

Saintpaulia *ionantha*; acaulis, hirsutula, foliis petiolatis ovato-v. oblongo-cordatis obscure crenatis apice obtusis v. rotundatis, pedunculis radicalibus ascendentibus, floribus paucis cymosis nutantibus, alabastris pendulis, sepalis 5–7 linearibus obtusis, corollæ extus pubescentis tubo brevissimo, limbo subrotato violaceo 2-labiato, labio superiore bilobo lobis rotundatis inferiore paullo majore 3-lobo lobis obovato-rotundatis, staminibus 2 ore constricto corollæ insertis, filamentis crassiusculis, antheris conniventibus reniformi-rotundatis apicibus cohærentibus, staminodiis 2 minimis posticis, disco angusto annulari, ovario-oblongo 1-loculari hirsuto, placentis intrusis contiguis furcatis secus ramos revolutos ovuliferis, stylo brevisculo gracili, stigmate simplicii.

Saintpaulia *ionantha, Herm. Wendl.*; *in Bull. Soc. Tosc. Ort.* (1894), p. 13, f. 1; *in Rev. Hort. Belg.* (1894), p. 109, *cum Ic. Neub. Garten.-Mag.* (1894), p. 362, fig. 97.

It does not often happen that a plant newly introduced into Europe can claim the honour accorded to the subject of this plate, of being within two years of its flowering figured in five first-class horticultural periodicals. Over and above its attractiveness it is interesting as being one of the few ornamental plants that have been introduced from the hilly regions of Eastern tropical Africa. It was discovered by Baron Walter von Saint Paul, whose father, Hofmarschal Baron St. Paul, of Fischbach in Silesia, President of the Dendrological Society of Germany, has kindly sent me the following account of its habitats, &c.:—"The *Saintpaulia* was discovered by my son, who lives in East Africa, where he owns plantations of Vanilla and India-rubber trees. It was found in two localities; one about an hour from Tanga, in wooded places, in the fissures of limestone rocks, as well as in rich soil with plenty of vegetable matter. This place is not more than fifty to one hundred and fifty feet above the sea level. The second place is in the primeval forest of Usambara,

April 1st, 1895.

likewise in shady situations, but on granite rocks, two thousand five hundred feet above the sea. It is much more plentiful in the former place. Several varieties have been discovered that differ slightly in colour of the flowers, but all are blue." Seeds were sent to his father by Baron Walter; from these plants were raised by Dr. Wendland at Herrenhausen, which flowered in 1893, and were exhibited at the International Horticultural Exhibition, held in that year in Ghent.

The specimen figured here was raised from seeds obtained from a continental nurseryman, and flowered in the Royal Gardens in July, 1894, under Gloxinia treatment.

The affinity of *Saintpaulia* is, according to Mr. C. B. Clarke, who has monographed the *Cyrtandreæ,* to be regarded as doubtful, until the ripe fruit is known. In habit and floral characters it perfectly agrees with *Boea*, Comm., a tropical Asiatic genus; but in that the capsule is long, slender, and twisted, whereas in *Saintpaulia*, judging from the immature fruit (fig. 7) it would appear to be short and straight.

Descr.—A perennial, stemless, hirsutely pubescent herb. *Leaves* one and a half to two inches long, shortly stoutly petioled, ovate- or oblong-cordate, obtuse, crenate, dark green, basal sinus closed; nerves few, spreading, deeply sunk on the upper surface, much raised beneath. *Flowers* in stoutly peduncled cymes, nodding; pedicels one half to one inch long; bracts small, narrow. *Sepals* 5–7, linear, obtuse, erect, green. *Corolla* an inch in diameter, subrotate, pale blue; tube much shorter than the sepals; limb bilabiate; upper lip 2-lobed, much the smallest; lower spreading, lobes all orbicular, concave, ciliolate. *Stamens* 2, inserted in the contracted mouth of the tube; filaments short, stout; anthers shortly exserted, didymous, conniving; staminodes minute conical projections in the throat of the corolla. *Ovary* ovoid, hirsute, style filiform, stigma purple. *Ovules* many, on the revolute arms of two parietal placentas. *Capsule* ovoid, hairy.—*J. D. H.*

Fig. 1, Calyx and style; 2, tube of corolla laid open and stamen; 3, ovary and disk; 4, transverse section of ovary; 5, hair of margin of corolla; 6, ovules; 7, immature fruit:—*All enlarged.*

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Tab. 7409.

IXIANTHES retzioides.

Native of the Cape of Good Hope.

Nat. Ord. Scrophularineæ.—Tribe Cheloneæ.

Genus Ixianthes, *Benth.*; (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 937.)

Ixianthes *retzioides*; frutex erectus, hirsutus, foliosus, foliis subverticillatim confertis erectis lineari-oblanceolatis acutis serratis rigidis, floribus axillaribus, pedicellis brevibus 2-bracteatis, calycis labio superiore 3-fido, inferiore 2-fido, lobis brevioribus lanceolatis acutis, corollæ sulphureæ viscido-puberulæ tubo inflato gibbo, labio superiore 2-fido erecto lobis rotundatis, inferiore patente 3-fido lobis oblongo-rotundatis, staminibus 2 corollæ basi insertis inclusis, antherarum loculis divaricatis, staminodiis 2–3, stylo incluso apice emarginato, capsula ovoideo-tetragona septicida, seminibus curvis.

I. retzioides, *Benth. in Hook. Comp. Bot. Mag.* vol. ii. (1836), p. 53; *in DC. Prodr.* vol. x. p. 335. *Harv. Thes. Capens.* vol. i. t. 99. *Macowan in Gard. Chron.* (1889), vol. i. p. 136, f. 19.

Ixianthes retzioides is described by Professor Macowan, F.L.S. (writing from Capetown) in the above-cited article in the *Gardener's Chronicle*, as one of the rarest of Western Cape plants. He says of it, "It appears to have been gathered by our predecessors Ecklon and Zeyher, and long afterwards by the late Dr. Pappe, who died in 1862. Mr. Robert Templeman, a nurseryman here, found a solitary plant in 1882 or 1883, and my colleague, Bolus, dropped upon the very same one some year or so afterwards, when it was almost destroyed by the cutting of a water-furrow. I have hunted for other examples every summer since. This year, after my return from an unsuccessful raid, the farmer, on whose property the locality is, found a small colony of the shrub, some examples being five feet high, and magnificently in flower. It grows almost in water." There are specimens of it in the Kew Herbarium from both Ecklon and Pappe, and from Messrs. Macowan and Bolus. The latter give as its habitat, by streams in the mountains near the waterfall of

April 1st, 1895.

Tulbagh, alt. 1200 ft. "rarissima." Ecklon gives also the county of Worcester, which adjoins Tulbagh on the S.E., as a habitat. No others are recorded. Prof. Macowan has sent to Kew dried specimens of a white-flowered variety, with the leaves rather more acutely serrated.

The plant here figured was raised from seeds sent in 1891 to the Royal Gardens, Kew, by Prof. Macowan, Government Botanist at Capetown, and which flowered in a cool greenhouse in June, 1894. Mr. Watson informs me that good plants of it were growing in the open air during the summer months, but that they would not survive the cold of an English winter.

Descr.—A branching, leafy shrub, attaining seven feet in height, all parts except the interior of the corolla pubescent. *Leaves* alternate, densely subverticillatedly crowded, 3–4 inches long, by about one-third of an inch broad; sessile, very narrowly oblanceolate, acute, serrate beyond the middle, greyish green above, paler beneath; nerves short, slender, spreading. *Flowers* 1–3, on short axillary peduncles. *Calyx* three-quarters of an inch long, glandular-pubescent, obscurely 2-lipped, deeply 3-lobed, with the posticous (or upper lip) broadest, and 3-fid at the tip; the others lanceolate, acute, all valvate. *Corolla* sulphur-coloured, glandular-pubescent externally; tube gibbously inflated, two-thirds of an inch long; limb one and a half inch broad, 2-lipped, 5-lobed; lobes orbicular-obovate, nearly equal; two upper erect, three lower spreading, mouth transversely oblong. *Stamens* two, included, inserted at the very base of the corolla-tube, with two or three interposed setiform staminodes; filaments slender, glabrous, incurved; anthers didymous. *Ovary* oblong, glandular-pubescent; style filiform, stigma purple. *Capsule* ovoid, acute, septicidal, many-seeded. *Seeds* curved, testa lax.—*J. D. H.*

Fig. 1, Calyx laid open, showing the two lateral lobes and one of the three connate dorsal lobes; 2, base of corolla, stamen, and staminodes from the specimen figured; *both enlarged*; 3, the same from native specimen:—*All enlarged.*

7410

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TAB. 7410.

PIPTOSPATHA RIDLEYI.

Native of the Malay Peninsula.

Nat. Ord. AROIDEÆ.—Tribe PHILODENDREÆ.

Genus PIPTOSPATHA, *N. E. Br.; (Benth. & Hook. f. Gen. Plant.* vol. iii. p. 855.)

PIPTOSPATHA *Ridleyi*; acaulis, foliis petiolatis elliptico-lanceolatis acutis apicibus tubulosis, supra viridibus pallide marmoratis, subtus pallidis, nervis primariis utrinque 6–8 rubris, nervulis tenuissimis, petiolo vaginisque lanceolatis rubro-fuscis, pedunculo petiolo multo longiore rubro-fusco, spatha nutante ovoidea apice repente rostrato recurvo, dimidio inferiore luride viridi, superiore roseo striato et punctato, spadice brevi basi annulo organorum neutrorum cincto, parte mascula apice rotundata femineæ æquilonga, antheris sessilibus quadrato-oblongis loculis lateralibus angustis poris terminalibus dehiscentibus, connectivo crasso apice hemisphærico, ovario ovoideo, stigmate pulvinato, ovulis basilaribus.

P. Ridleyi, *N. E. Br. mss.*

The genus *Piptospatha* was established in 1879 by Mr. N. E. Brown in the *Gardener's Chronicle*, upon a Bornean plant, *P. insignis*, which has been figured in this Magazine (Tab. 6598); the generic name taking precedence by one year of Engler's *Rhynchopyle*. It belongs to the tribe *Philodendreæ* of *Aroideæ*, and is distinguished by the nodding spathe, the limb of which is calyptrately deciduous from the tube, the latter forming a funnel-shaped cup around the fruiting spadix; by the prolonged connective of the anthers, which in *P. insignis* forms a conical horn; and by the unilocular ovaries with basilar or sub-basilar erect ovules. The seeds of the species in which these have been seen, are remarkable for the testa being produced into a tail longer than the nucleus. *P. Ridleyi* differs from *P. insignis*, in the greater size of the broader foliage, in the connective of the anthers forming a pubescent hemisphere, and in the orbicular stigma distinct from the crown of the ovary. The other described species are *P. elongata*, N. E. Br., and *P. marginata*, N. E. Br., both Bornean, and published in Engler's "Bot. Jahrb.," i. (1881), 184, and figured in Beccari's "Malesia" (under *Rhynchopyle*), and there are yet others in the Kew Herbarium hitherto undescribed. As with other tribes of obscure Malayan Aroids, natives of dark tropical forests, they are overlooked by collectors in search of showy plants of horticultural interest; and it is only when their native habitats are visited by such experienced botanists and travellers as Dr. Beccari, in the Malayan Islands, and Mr. Ridley in the Peninsula, that they are likely to be procured for scientific purposes.

Piptospatha Ridleyi is a native of Johore, in the southern extremity of the Malay Peninsula. It was sent to the Royal Gardens, Kew, in 1893, by the botanist whose name it bears, the Director of the Garden and Forest Department of the Straits Settlements. It flowered in the Tropical House in June of the same year, and continued in flower all the summer.

Descr.—Basal sheaths of stem lanceolate, acuminate, and like the petioles a dark vinous red. *Leaves* erect, six to eight inches long by two broad, elliptic-lanceolate, acute at both ends, dark green above, with pale blotches between the eight to ten pairs of ascending nerves; dull pale green beneath, with slender midrib nerves, and a narrow, intramarginal nerve; petiole about half the length of the blade, grooved in front. *Peduncle* about as long as the leaves, pale reddish brown, as thick as a small goose-quill. *Spathe* two inches long, nodding or decurved, ovoid, with a short, upturned beak, closed, except at the apex; base dull green, upper half or more, pink, with slender, darker nerves and dots. *Spadix* sessile, about one-quarter the length of the spathe, cylindric, top rounded; flowers densely packed; male portion as long as the female, the latter subtended by a ring of minute, clavate neuters. *Anthers* quadrately oblong; cells lateral, opening by minute, terminal pores; connective hemispheric, pubescent. *Ovaries* ovoid, 2-celled; stigma sessile, disciform; ovules many, basal erect, orthotropous.—*J. D. H.*

Fig. 1, Top of peduncle and spadix; 2 and 3, anthers; 4, neuter organ; 5, ovary; 6, the same cut lengthwise, and 7, transversely; 8, ovules:—*All enlarged.*

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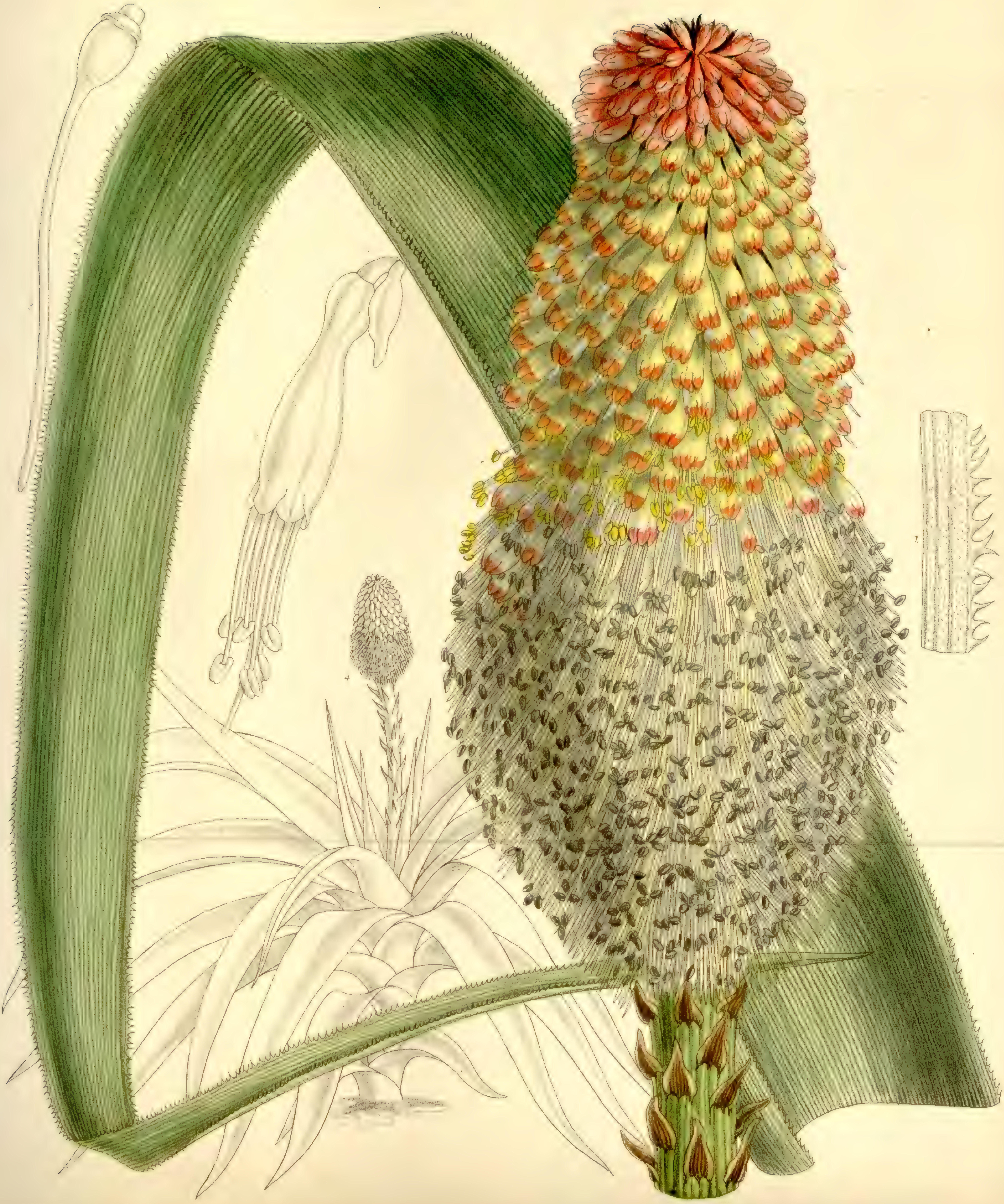

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Tab. 7411.

MAGNOLIA parviflora.

Native of Japan.

Nat. Ord. Magnoliaceæ.—Tribe Magnolieæ.

Genus Magnolia, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 18.)

Magnolia *parviflora*; arbor, ramulis pubescentibus, foliis deciduis petiolatis elliptico-ovatis cuspidatis immarginatis basi rotundatis subtus pallide viridibus puberulis, nervis utrinque 5–7 arcuatis impressis, floribus foliis cœtaneis longe pedunculatis 3½–4 poll. diam., sepalis 3 oblongis pallide roseis demum reflexis, petalis ad 6 late obovatis concavis albidis, staminibus numerosis incurvis, filamentis antheras lineari-oblongas sanguineas æquantibus, gynostegio oblongo breviter stipitato, carpellis paucis.

M. parviflora, *Sieb. & Zucc. in Abh. Akad. Muench.* vol. iv. pt. 2 (1843), p. 187. *Miq. Prolus. Fl. Japon.* p. 146. *Franch. & Sav. Enum. Pl. Japon.* vol. i. p. 16. *Rev. Hort. Belg.* (1891), p. 44, 45. *Walp. Ann.* i. 956. *Keisuke Ito, Descr. Plant. Bot. Gard. Koishikawa* (*Tokio Hort. Bot.*), vol. i. t. 13. *Kwa-wi Arb.* vol. iii. fol. 8. *Phonzo Zufou*, vol. 82, fol. 9, 10.

Oyama Renga, *Jap.*

Under *Magnolia Watsoni*, I have in this Magazine (Tab. 7157) alluded to *M. parviflora*, and indicated the differences between these two species, which consist in the small size of all the parts of the latter, the few nerves of its leaves, and the long peduncle of its flowers; to which may be added the absence of the yellow margin of the leaves, and the fewer carpels.

M. parviflora is a native of the alpine region of the Japanese island of Nippon, and is recorded from Mounts Hakone and Hego-san, and from the foot of the volcano of Wunyen. The plant from which the drawing is made was purchased in 1893, from the Yokohama Gardener's Association. It flowered in June, 1894, in the Temperate House of the Royal Gardens, Kew.

Descr.—A small tree; branches rather slender, glabrous; branchlets pubescent. *Leaves* four to six inches long, membranous, oblong or obovate-oblong, shortly obtusely cuspidate, glabrous above, pubescent beneath, base rounded, nerves five to six pairs, light green above, much paler beneath

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with yellowish nerves, margins green; petiole three-fourths of an inch long, green, pubescent. *Flowers* long-peduncled, three and a half to four inches in diam.; peduncle one to two and a half inches long. *Sepals* three, oblong, pale rose-colrd., glabrous. *Petals* about six, obovate, very concave, white. *Stamens* very many, strongly incurved; anthers about equalling the filaments, blood-red, tips obtuse. *Carpels* few, lanceolate, adnate to the axis of the gynophone. *Ovules* two.—*J. D. H.*

Fig. 1, Portion of under surface of leaf; 2 and 3, stamens; 4, young carpel:—*All enlarged.*

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TAB. 7412.

KNIPHOFIA NORTHIÆ.

Native of Cape Colony.

Nat. Ord. LILIACEÆ.—Tribe HEMEROCALLEÆ.

Genus KNIPHOFIA, *Mœnch.* (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 775.)

KNIPHOFIA *Northiæ*; breviter caulescens, foliis 30–40 dense rosulatis lanceolatis acuminatis recurvatis glaucescentibus e basi ad apicem sensim angustatis, dorso indistincte carinatis margine crebre denticulatis, pedunculo valido foliis multo breviore, racemo densissimo oblongo, pedicellis brevissimis clavatis, bracteis ovatis navicularibus pedicello longioribus, perianthio subcylindrico supra ovarium leviter constricto citrino ante anthesin rubro tincto, lobis brevibus obtusis, staminibus longe exsertis, stylo staminibus longiore.

K. Northiæ, *Baker in Journ. Bot.* 1889, p. 43; in *Gard. Chron.* 1891, vol. ii. p. 66.

This is the most robust and aloe-like of all the species of this favourite genus. From its nearest ally, *K. caulescens*, Baker (Bot. Mag. tab. 5946) it may be easily distinguished by not having any raised keel on the back of the leaf. It was first brought into notice in this country by Miss Marianne North, who painted it (see the North Gallery, No. 367) and brought home a plant which she presented to the Royal Gardens at Kew. We are informed by Mr. E. Tidmarsh, the Curator of the Botanic Garden at Grahamstown, that it was first found in a wild state in the neighbourhood of that town by Mr. W. Dugmore. It was brought to Kew by Miss North in 1883, and flowered for the first time in the Succulent House in July, 1889. Plants were distributed from Kew, and one of these flowered with Mr. W. E. Gumbleton in County Cork in 1891. For two years a large group of it has been planted out in the open air at Kew, on the south side of the Orchid House, the plants being only protected in winter by a few dry leaves being placed round their collars. Under these conditions it grows freely, and this year every plant has flowered, so that it may be considered as hardy in favourable situations in the south of England

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and Ireland. Our drawing was made from a plant that flowered at Kew in June, 1894.

Descr.—*Stem* shortly produced below the rosette of leaves, two or three inches in diameter. *Leaves* thirty or forty in a dense rosette, lanceolate, acuminate, glaucous, four or five feet long, five or six inches broad near the base, narrowed gradually to a long point, without any acute keel on the back, strongly and closely denticulate on the edges. *Peduncle* very stout, much shorter than the leaves. *Raceme* dense, oblong, half a foot to a foot long; pedicels very short, deflexed, clavate; bracts ovate-navicular, longer than the pedicels. *Perianth* subcylindrical, constricted a little above the ovary, an inch or rather more long, pale yellow when mature, in an early stage more or less tinged with red; lobes short, suborbicular, obtuse. *Stamens* half as long again as the perianth. *Ovary* ovoid; style very long, overtopping the anthers.—*J. G. Baker.*

Fig. 1, Margin of leaf; 2, flower, with pedicel and bract; 3, pistil, *all enlarged*; 4, whole plant, *much reduced.*

7413.

M. S. del, J. N. Fitch lith

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TAB. 7413.

VACCINIUM ERYTHROCARPUM.

Native of the Alleghany Mountains.

Nat. Ord. VACCINIACEÆ.—Tribe EUVACCINIEÆ.

Genus VACCINIUM, *Linn.* (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 573.)

VACCINIUM (Oxycoccoides) *erythrocarpum*; fruticulus ramis divaricatis, ramulis puberulis, foliis deciduis ovatis ovato-oblongisve acuminatis serrulatis sinubus setiferis supra setulosis venosis, floribus solitariis axillaribus longe pedicellatis pendulis, calycis tubo obconico limbo brevissime 4-dentato, corolla rosea alabastro conica, tubo brevi, lobis 4 loriformibus revolutis, filamentis villosis, antheris elongatis puberulis dorso medio bicalcaratis, baccis globosis demum nigricantibus.

V. erythrocarpum, *Michx. Fl. Am. Bor.* vol. i. p. 227. *A. Gray Fl. N. Un. St.* ed. v. p. 290; *Synopt. Fl. N. Am.* vol. ii. pt. i. p. 25. *Chapm. Fl. S. Un. St.* p. 259.

OXYCOCCUS erectus, *Pursh Fl. Am. Sept.* vol. i. p. 264. *DC. Prodr.* vol. viii. pars ii. p. 577. *Wats. Dendrol. Brit.* vol. i. t. 31. *Loud. Arboret. Brit.* p. 1171, fig. 994.

O. erythrocarpus, *Pers. Synops.* vol. i. p. 419.

A remarkable whortleberry, uniting by the structure of its flowers, the deciduous leaved species of *Vaccinium* proper, in which the corolla is ovoid, with the true *Oxycocci* or cranberries, which have persistent leaves, and a corolla divided nearly to the base into long narrow at length revolute lobes. This has led to differences of opinion regarding the position of *V. erythrocarpum*, and the validity of *Oxycoccus* as a genus differing from *Vaccinium*. Michaux, who, I believe, discovered, and who first described the plant, placed it in *Vaccinium*, while Persoon, and following him Pursh, referred it to *Oxycoccus*. Asa Gray, the highest authority for North American plants, reduced *Oxycoccus*, including *V. erythrocarpum*, to a section of *Vaccinium*, distinguishing the latter from the other *Oxycocci*, the Cranberries by its habit and deciduous leaves. Lastly, in the Genera Plantarum, *V. erythrocarpum* is retained in *Vaccinium*, with the sectional characters of the corolla, whilst *Oxycoccus* is restored for the two cranberries (*O. palustris* and *O. macrocarpus*), which differ from all

Vaccinia in their mode of growth, and in the flowers being produced on erect terminal pedicels from bracteate buds.

V. erythrocarpum is a native of the higher Alleghanies, from Virginia to North Carolina, where it grows gregariously, flowering in July. I do not find that it has a native name. It was introduced into England in 1806 by Messrs. Loddiges. The specimen here figured was from a plant raised from seeds sent by the late Dr. A. Gray from Harvard Botanical Gardens in 1886, and which flowered in the Arboretum of the Royal Gardens in June, 1894. The fruit, which is of a bright red when immature, and ripens to a blue-black, is slightly acid and insipid.

Descr.—A shrub three to four feet high, with spreading terete branches, and puberulous branchlets. *Leaves* one and a half to two inches long, subsessile, deciduous, ovate or ovate-oblong, acute or acuminate, serrulate, with minute bristles on the upper surface, and in the angles between the teeth, base rounded or subacute, upper surface dark green, with sunk veins, under paler, with strong nerves and reticulate nervules; young leaves tinged with red. *Flowers* solitary in the axils of almost every leaf, half an inch long, pendulous from slender, minutely bibracteolate, pedicels one-fourth to two-thirds of an inch long. *Calyx* obconic, terete; limb minutely 4-toothed. *Corolla* conic in bud, deeply four-lobed, the lobes linear and revolute. *Stamens* as long as the corolla-lobes, cohering in a truncate, erect cone; filaments very short, hairy, orange-red; anthers slender, pubescent, with two short, dorsal, spreading horns about the middle; tubes long, connate. *Style* stout. *Berry* at first red, ripe blue black, half an inch in diameter, smooth, many-seeded.—*J. D. H.*

Fig. 1, Portion of upper surface of leaf; 2, flower; 3, calyx and style; 4 and 5, stamens:—*All enlarged.*

M. S. del J. N. Fitch lith.

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TAB. 7414.

ARGYLIA CANESCENS.

Native of Chili.

Nat. Ord. BIGNONIACEÆ.

Genus ARGYLIA, *D. Don.*; (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 1043.)

ARGYLIA *canescens*; caudice erecto cylindraceo, caules annuos erectos ascendentesve simplices ramososve laxe foliatos pilosos subapice emittentes foliis alternis distantibus longe petiolatis pubescentibus rotatim 7-foliolatis, foliolis petiolulatis ovatis bipinnatifidis lobis ultimis brevibus obtusis, floribus apicem versus caulis subcapitatim corymbosis breviter pedicellatis additis paucis dissitis, bracteis lanceolatis pedicellos subæquantibus, sepalis linearibus obtusis laxe villosis, corollæ aureæ pubescentis tubo infundibulari-campanulato intus rubro striato, limbi vix bilabiati lobis 5 subæqualibus late obovatis retusis, capsula lineari rostro erecto.

A. canescens, *D. Don in Edinb. N. Phil. Journ.* (Apr.-June, 1829), p. 88. *G. Don Gen. Syst.* vol. iv. p. 229. *DC. Prodr.* vol. ix. p. 235. *C. Gay Fl. Chil.* vol. iv. p. 441.

A. radiata, *Endl. Iconog.* vol. xii. p. 71.

Argylia is a very remarkable genus of *Bignoniaceæ*, confined to the Andean region of Chili and Peru. About twenty species have been described, but so imperfectly that it is impossible to say how few or many of them are really distinct. The genus was founded on a plant figured by Louis Feuillée,* in his "Journal des Observations physiques mathematiques et botaniques, faites par ordre du Roi, sur les Cotes Orientales de l'Amérique Méridional, et dans les Indes Occidentales, depuis 1707–1712," published in 1714, with fifty plates of plants. Amongst the latter is an *Argylia*, a native of Peru, which differs from *A. canescens* in the broader, more entire leaflets, the long tube of the corolla and other characters. The genus was named in honour of Archibald Campbell, third Duke of Argyle (who died 1761), a great lover of plants, and the introducer of many American trees and shrubs into Whitton Park, Isleworth, for many years his residence, of which the greater part were transferred on his death to Kew, but some still remain.

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* A notice of the Life and Labours of Friar Feuillée will be found under tab. 7249, *Pasithea coerulea.*

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The genus is here for the first time figured from a specimen cultivated in Europe. It was presented to the Royal Gardens, Kew, by Thomas King, Esq., of Garnett Hill, Glasgow, in 1892, along with a collection of bulbs and seeds from Valparaiso. It flowered in a cool house in July, 1893, and again in 1894. The plant is not uncommon in Chili, from the latitude of Concepcion to that of Coquimbo, ascending to 7000 feet on the Andes.

Descr.—*Caudex* several inches high, cylindric, three-quarters of an inch in diam. or more, contracted at the apex, emitting from near the top annual leafing and flowering stems; bark pale, covered with transverse scars. *Flowering stem* strict, erect, twelve to eighteen inches high, simple or branched, as thick as a goose-quill, terete, green, pubescent. *Leaves* alternate, distant; petiole four to eight inches long, pubescent, terminated by a whorl of pubescent, broadly ovate bi-tri-pinnatifid petiolulate leaflets, two to three and a half inches long, the segments of which are narrow and obtuse. *Flowers* subcorymbosely disposed on the summit of the stem, with a few distantly scattered lower down the stem; bracts lanceolate, green, half an inch long, about as long as the pedicels, softly hairy, as is the calyx. *Sepals* one-third of an inch long, linear, obtuse, erect. *Corolla* golden-yellow, with blood-red interrupted streaks in the throat opposite the three lower lobes; tube nearly one inch long, glandular-pubescent, narrow at the base, then dilated and sub-campanulate; limb one and a quarter to one and a half inch in diam., lobes subequal, broadly obovate, retuse. *Stamens* 4, didynamous, included in the corolla tube, inserted at the tip of the narrow portion; staminode minute styliform. *Disk* naked, 4-lobed. *Ovary* oblong, shortly stipitate, pubescent; style slender, stigma of two ovate lamellæ. *Capsule* four inches long, deflexed, narrow, cylindric, with a long, subulate, straight beak. *Seeds* many, minute, subdidymously orbicular, beautifully striate.—*J. D. D.*

Fig. 1, Calyx, style and stigma; base of tube of corolla laid open, with stamens and staminode; 3, anther; 4, disk and ovary; 5, capsule (of the natural size); 6 and 7, seeds:—All but fig. 5 *enlarged*.

M.S. del. J.N. Fitch lith.

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TAB. 7415.

VERONICA HECTORI.

Native of New Zealand.

Nat. Ord. SCROPHULARINEÆ.—Tribe DIGITALEÆ.

Genus VERONICA, *Linn.; (Benth. & Hook. f. Gen. Plant.* vol. ii. p. 964.)

VERONICA (Hebe) *Hectori*; fructiculus robustus, ramosus, ramulis elongatis erectis teretiusculis, foliis per paria connatis appresse imbricatis late ovatis v. orbiculari-ovatis obtusis crassis pinctulatis dorso convexis ecarinatis, junioribus ciliolatis, floribus in capitula terminalia aggregatis axillis, summis sessilibus, bracteis foliis conformibus sed paullo latioribus, sepalis lineari-oblongis obtusis ciliatis, corollæ albæ tubo calyce vix longiore, limbi lobis 3 oblongis obtusis, antico angustiore, antheris rubro purpureis, ovario glaberrimo, capsula sepalis æquilonga.

V. Hectori, *Hook. f. Handb. N. Zeald. Flora,* p. 212. *Armstr. in Trans. New Zeald. Institute,* vol. xiii. (1885), p. 352.

V. Hectori belongs to the group of New Zealand Speedwells, which includes *V. lycopodioides* (tab. 7338), *V. tetragona* (Hook. Ic. Pl. t. 580), and a few others, characterized by the short, thickly coriaceous, scale-like, densely imbricating leaves, often united by thin bases into a two-lipped cup. In most of the species of this group the branches are more less tetragonous, from the leaves being dorsally keeled, but in *V. Hectori* the branches are nearly terete, from the leaves being dorsally rounded. From both the above-named species *V. Hectori* differs in the very small flowers and broader sepals.

The discoverers of this species, which is confined, as far as is known, to the Alps of Otago, in the southern province of the Southern Island of New Zealand, were Sir James Hector, F.R.S., and Mr. Buchanan, who describe it as the largest shrub at elevations of 7000 to 8000 feet in the Lake district, growing about two feet in height; and also as forming low, rigid, spreading patches, which "crackle under the feet." In its native country it flowers in April and May, months answering to October and November in ours, whereas it flowered in Edinburgh in July; an apparent anomaly probably due to the elevation of its native habitat.

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The flowers are pink or white. The specimen figured was communicated by Dr. Balfour, F.R.S., from the Royal Botanic Garden of Edinburgh in July, 1894.

Descr.—A small woody, tufted, erect shrub, growing in patches. *Stem* terete, brown, woody, as thick as a goose-quill below, marked with the close-set scars of fallen leaves; branches erect, sparingly divided, densely clothed with decussate closely imbricating appressed scale-like leaves, nearly terete, bright green. *Leaves* one-sixth of an inch long, very coriaceous, broadly orbicular-oblong, connate to the middle in pairs, dorsally convex, bright green, shining; margins of young leaves ciliate. *Flowers* few, in small terminal heads, bracts (the uppermost leaves) rather larger than the cauline leaves, ciliate. *Calyx* four-lobed nearly to the base; sepals linear-oblong, ciliate. *Corolla* one quarter of an inch broad, white (or pink); tube hardly longer than the sepals; lobes oblong, obtuse, the anticous much narrower than the others. *Anthers* oblong, red-purple. *Ovary* oblong, quite glabrous; style very slender. —*J. D. H.*

Fig. 1, Summit of branch with calyces and styles; 2, calyx; 3, flower; 4, ovary:—*All enlarged.*

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M.S.del. J.N.Fitch lith.

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TAB. 7416.

CYPRIPEDIUM CHARLESWORTHII.

Native of Arracan.

Nat. Ord. ORCHIDEÆ.—Tribe CYPRIPEDIEÆ.

Genus CYPRIPEDIUM, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 634.)

CYPRIPEDIUM (Coriaceæ) *Charlesworthii*; foliis lineari-oblongis loratisve acutis laete viridibus, scapo unifloro hirsutulo virescente rubro maculato, bractea ovario breviore obtusa, ovario brevi costis purpureis hirsutis, sepalo dorsali magno orbiculari demum convexo roseo nervis sanguineis reticulato, sepalis lateralibus in laminam late ovatam obtusam virescentem pubescentem labello suppositam connatis, petalis planis patentibus lineari-oblongis obtusis pubescentibus luride flavo-viridibus nervis rufescentibus, labello petalis concolore saccato auriculis rotundatis, staminodio eburneo orbiculari disco tumido in cornu conicum producto, stigmate reniformo.

C. Charlesworthii, *Rolfe in Orchid Review*, vol. i. pp. 303, 355, *cum Ic. Gard. Chron.* (1893), vol. ii. pp. 406, 437, fig. 70. *Journ. of Hortic.* (1893), vol. ii. p. 307, fig. 43. *Gartenflora*, vol. xliv. p. 1, t. 1410. *Rev. Hortic. Belge* (1894), p. 253, *cum Ic.* *Lindenia*, vol. x. p. 25, t. 443.

As observed by Mr. Rolfe, *Cypripedium Charlesworthii* is a very distinct species from any hitherto known, most nearly allied to *C. Spicerianum*, Reichb. f. (Bot. Mag. t. 6490), and *C. Drurii*, Beddome (Lindenia i. t. 6), but well distinguished from both by (amongst other characters) the rose-cold. dorsal sepals, and the horned boss on the disk of the staminode, in which respects it is unique in the genus. It is named in honour of the head of the firm of Messrs. Charlesworth, Shuttleworth & Co. of Heaton, Bradford, who were the importers of the species.

The specimen here figured was purchased at an auction sale. It flowered in the Orchid House of the Royal Gardens in August of last year. It is a free flowerer, and the flowers show considerable variation in size and colour. Its native country is the province of Arracan, in the Bay of Bengal, one of the most unhealthy districts of India, and hence unexplored botanically. It was found in company with *C. bellatulum*, Reichb. f., a species the habitat of which was previously unknown, and which species is consequently not described in the Flora of British India.

Descr.—*Leaves* six to eight inches long by an inch broad, spreading and recurved, acute, glabrous, bright green above, pale beneath with purple spots towards the base. *Scape* one-fld., as long as the leaves, stout, hirsute, green, with crowded red linear spots. *Bract* an inch long, oblong, obtuse, green, with dull purple blotches. *Ovary* one to one and a half inch long, green, with hirsute, dark purple ribs. *Dorsal sepal* erect, orbicular, two inches in diameter, at first flat, at length convex, from the sides recurving, rose-cold., reticulated with blood-red nerves; lateral sepals connate in a broadly ovate, obtuse, pale greenish blade, with pale, brownish-red nerves. *Petals* one and a half inch long, horizontally spreading, linear-oblong, obtuse, pubescent, dull yellow-green, with five to seven broad, red-brown nerves. *Lip* saccate, dirty greenish yellow, suffused with brown, mouth wide, truncate, margins not recurved, auricles rounded. *Staminode* suborbicular, ivory-white, with a central boss ending in a short, conical horn; stigma reniform.—*J. D. H.*

Fig. 1, Side, and 2, front view of staminode and stigma:—*Both enlarged.*

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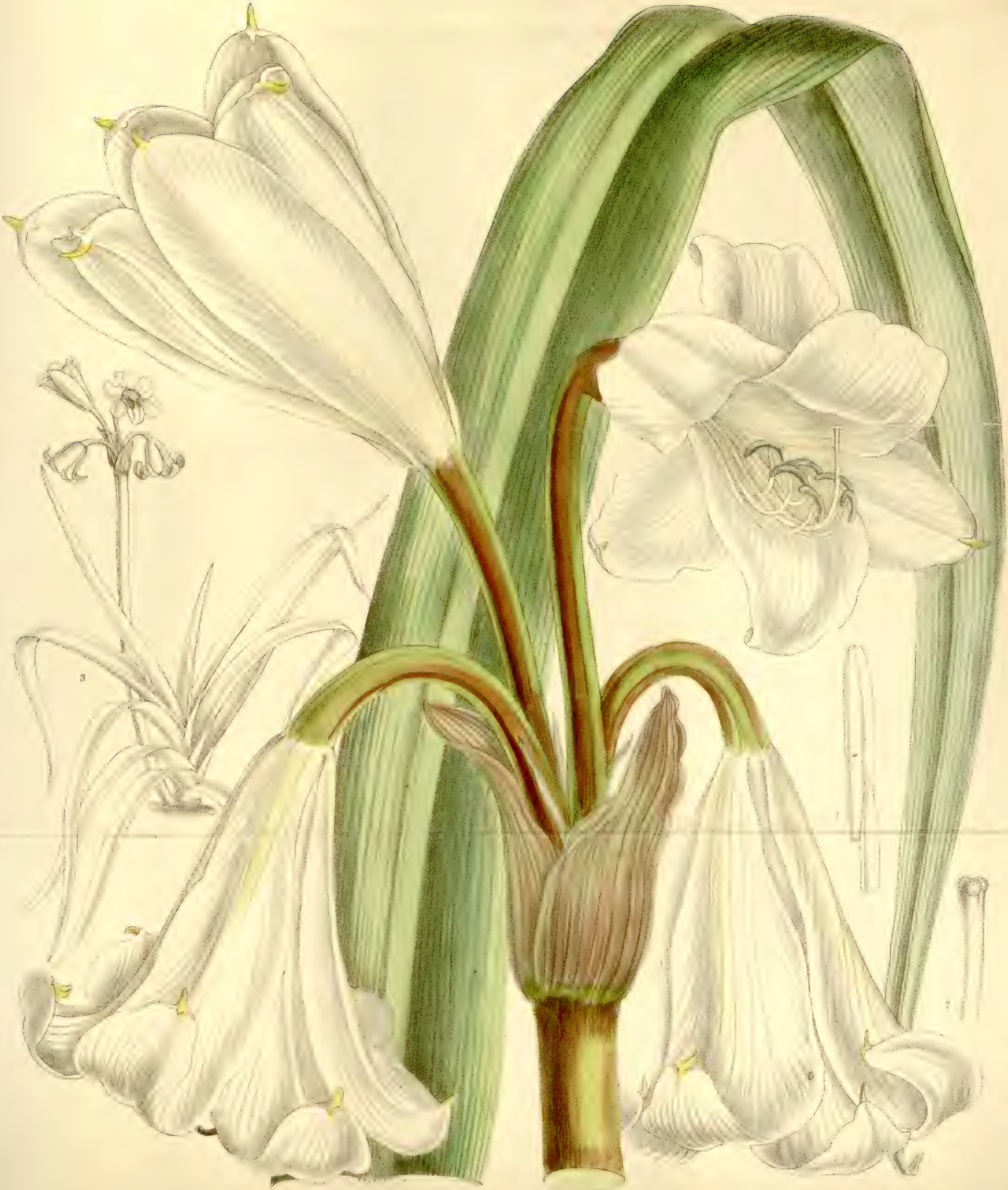

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Tab. 7417.

CRINUM Schimperi.

Native of Abyssinia.

Nat. Ord. Amaryllideæ.—Tribe Amarylleæ.

Genus Crinum, *Linn.; (Benth. & Hook. f. Gen. Plant.* vol. iii. p. 726.)

Crinum (*Codonocrinum*) *Schimperi*; bulbo globoso magno collo elongato, foliis 8–10 linearibus glabris recurvatis facie viridibus dorso glaucescentibus, pedunculo valido foliis breviore, umbellis paucifloris, spathæ valvis 2 ovatis, pedicellis subnullis, perianthii tubo cylindrico 4-pollicari bruneo-viridulo primum suberecto demum cernuo, limbo albo tubo æquilongo, lobis oblanceolato-oblongis acutis apice patulis, staminibus declinatis limbo brevioribus, stylo declinato staminibus longiore.

C. Schimperi, *Vatke inedit.*; *Schum. in Gartenflora,* vol. xxxviii. (1889), p. 561, tab. 1309.

This fine *Crinum* belongs to the same group as *C. latifolium,* Linn, *zeylanicum,* Linn, and *longifolium,* Thunb. (*capense,* Herb.). In its foliage and general habit it closely resembles *C. abyssinicum,* Hochst.; but the flower is much larger. From *C. scabrum,* Herb., and *Sanderianum,* Baker, it differs by its pure white flowers. The bulbs were sent by Schimper from the mountains of Abyssinia, about twenty years ago, to the Botanical Garden at Berlin, but it was not recognized and described as a new species till 1889, and in the meantime some of the bulbs had been distributed under the name of *C. abyssinicum,* Hochst. The Royal Gardens, Kew, has received it both from the Berlin Botanical Garden and Herr Leichtlin. It flowered in an unheated frame last July, and seems likely to become one of the favourite half-hardy species of this large and difficult genus.

Descr.—*Bulb* globose, the size of a man's fist, with an elongated neck. *Leaves* eight or ten to a rosette, developed at the same time as the flowers, linear, recurving, glabrous on the surfaces and edges, three feet long, two inches broad low down, tapering gradually to the point, green above, glaucous beneath.. *Peduncle* arising from the base of the rosette of leaves, very stout, terete, two

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feet long, brownish. *Umbel* few-flowered; spathe-valves two broad, ovate; pedicels very short. *Perianth* with a cylindrical reddish-green tube four inches long, which is finally more or less curved, and a pure white permanently funnel-shaped limb of the same length, of which the oblanceolate-oblong acute lobes spread at the tip when the flower is fully expanded. *Stamens* declinate, an inch shorter than the perianth-limb; filaments white; anthers small, whitish. *Style* declinate, entire, rather longer than the stamens.—*J. G. Baker.*

Fig. 1, Back view of an anther; 2, apex of the style, *both enlarged*; 3, whole plant, *much reduced.*

7418.

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TAB. 7418.

TRICHOCLADUS GRANDIFLORUS.

Native of the Transvaal.

Nat. Ord. HAMAMELIDEÆ.

Genus TRICHOCLADUS, *Pers.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 667.)

TRICHOCLADUS *grandiflorus*; frutex v. arbuscula, ramulis rubro punctatis novellis racemisque stellato-puberulis, foliis petiolatis tenuiter coriaceis ovatis subacutis v. ovato-lanceolatis subcaudato-acuminatis apicibus obtusis integerrimis reticulatis supra laete viridibus subtus pallidioribus, racemis subsessilibus brevibus axillaribus et terminalibus, rachi robusto, pedicellis brevissimis, calycis clausi demum 2–3-fidi lobis triangulari-ovatis, petalis elongatis loriformibus undulatis albis basi roseis, staminibus brevibus, filamentis subglobosis, connectivo in cornu uncinatum producto, ovario apice hirto, stylis subulatis recurvis intus stigmatosis, capsula globosa.

T. grandiflorus, *Oliver in Hook. Ic. Pl.* vol. xv. p. 64, t. 1481.

Though differing in some important points from the type of the genus *Trichocladus*, with which it accords in habit, and in most of its characters of flowers and fruit, it must, I think, be regarded as a congener of it. Of these characters Professor Oliver has indicated the 2–3-fid calyx, and the adhesion of the ovary to the tube of the calyx (which he regards as indications of affinity with the Malayan genus *Maingaya*); to which should be added the bisexual flowers, and the anthers not being univalvular in dehiscence. The fruit, which Professor Oliver had not seen when describing the species, altogether resembles that of *T. crinitus*, Pers.

Five species of *Trichocladus* have been described, all South Africa, *T. crinitus*, Pers., the type of the genus; *T. ellipticus* and *T. verticillatus*, Eckl. & Zey.; *T. peltatus*, Meissn., and that here figured.

Trichocladus grandiflorus was discovered in the Berg Plateau of the Transvaal by Mr. C. Mudd, who sent specimens to Messrs. Veitch in 1883, by whom they were transmitted to the Kew Herbarium. It has since then been received from Mrs. Royston, of Moodies, and from

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Mr. E. E. Galpin, who collected it in wooded ravines near Barberstown, at an elevation of 3500 to 4000 feet. To Mr. Galpin the Royal Gardens are also indebted for seeds sent in 1890, a plant raised from which has now attained a height of nine feet in the Temperate House, where Mr. Watson thinks it looks as if it would grow into a good sized tree. It flowered for the first time in July, 1894.

Descr.—A shrub or small tree, bark brown; young branches green, with red-purple spots, at first stellately pubescent. *Leaves* three to four inches long, shortly petioled, ovate, subacute, or ovate-lanceolate and caudately acuminate, dark green above, paler beneath, young bronzy brown, stellately pubescent. *Flowers* an inch and a half in diameter, crowded in short, axillary and terminal subsessile racemes; rachis and pedicels short, and calyces stellately pubescent. *Calyx* a quarter of an inch long, green, splitting irregularly into two or three triangular deciduous lobes. *Petals* five, one half to two-thirds of an inch long, strap-shaped, undulate, white, rose-colrd. at the base. *Stamens* very small; filaments subglobose, shorter than the two-celled anthers, which dehisce laterally, connective produced into an incurved horn. *Ovary* 2-celled, adnate to the calyx-tube; styles subulate. *Capsule* subglobose.—*J. D. H.*

Fig. 1, Bud; 2, stellate hairs; 3, tube of calyx and stamens; 4 and 5, stamens; 6, vertical section of ovary:—*All enlarged.*

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TAB. 7419.

RIBES BRACTEOSUM.

Native of Western North America.

Nat. Ord. SAXIFRAGEÆ.—Tribe RIBESIEÆ.

Genus RIBES, *Linn.* (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 654.)

RIBES (Ribesia) *bracteosum*; fruticosum, inerme, glaberrimum, glandulosum, foliis amplis 5–7-lobatis, lobis ovatis lanceolatisve acutis v. acuminatis grosse serratis, petiolis elongatis, racemis elongatis erectis ascendentibusve multifloris, bracteis persistentibus linearibus spathulatisve infimis foliaceis, floribus flavidis, calycis lobis oblongis obtusis petalis spathulatis triplo longioribus, staminibus petalis æquilongis, baccis atris glandulosis polyspermis.

R. bracteosum, *Dougl. in Hook. Fl. Bor. Am.* vol. i. p. 233. *Bongard, Veg. Sitcha*, p. 138. *Torr. & Gray Fl. N. Am.* vol. i. p. 550. *Eaton & Wright Man. Bot.* p. 395. *Ledeb. Fl. Ross.* vol. ii. p. 201. *Rothr. Fl. Alask.* p. 446. *S. Wats. Bot. Calif.* vol. i. p. 206. *Maximov. in Bull. Acad. Petersb.* vol. xix. p. 253. (*Mel. Biol.* vol. ix. p. 222.)

It is rather singular that so fine and hardy a plant as the subject of this plate, which was discovered nearly seventy years ago, and is common in what has long been an English colony, should never have been figured in any work, or found its place in our shrubberies of England; for, so far as I can ascertain, it is in cultivation nowhere but at Kew, where there is no history of its introduction. It was discovered by David Douglas in 1826, at the mouth of the Columbia River in Oregon, and has since been found along the Pacific coast of North America from Mendocino county in California to Sitka in Alaska, a range of upwards of 1200 miles. Not a few other shrubs besides trees and herbaceous plants extend through as many or more degrees of latitude on that coast, due no doubt to the equability of its temperature.

R. bracteosum forms a handsome shrub when five to six feet high, with bright green leaves like those of the maple, which attain a breadth of eight to ten inches. It flowers at Kew in May.

Descr.—Quite glabrous, or minutely pubescent on the raceme, and sparsely glandular. *Stem* four to ten feet

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high, erect, branched, terete, smooth. *Leaves* three to nine inches broad, palmately 5–7-cleft to or below the middle, membranous, bright green; lobes ovate or lanceolate, acute, coarsely serrate, base truncate; petiole slender, longer than the blade. *Racemes* three to six inches long, shortly peduncled, erect, many-fld., lengthening in fruit often to a foot; bracts linear or spathulate, persistent, lower sometimes foliaceous; pedicels half an inch long, slender. *Flowers* erecto-patent. *Calyx-tube* turbinate, glandular; limb a third of an inch diam.; lobes ovate-oblong, obtuse, spreading, golden yellow, with green tips and red bases, but probably variable in colour. *Petals* minute, spathulate. *Stamens* as long as the petals. *Anthers* didymous. *Styles* slender. *Berries* erect, globose, black, glandular.—*J. D. H.*

Fig. 1, Flower, pedicel, and bract; 2, gland; 3, flower with two sepals removed; *all enlarged*; 4, portion of fruiting raceme *of the nat. size.*

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TAB. 7420.

PERAPHYLLUM RAMOSISSIMUM.

Native of Western North America.

Nat. Ord. ROSACEÆ.—Tribe POMEÆ.

Genus PERAPHYLLUM, *Nutt.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 628 (*sub* Amelanchier.)

PERAPHYLLUM *ramosissimum*; frutex fruticulusve ramosus rigidus, foliis coriaceis anguste oblanceolatis acutis in petiolum brevem angustatis integerrimis vel apicem versus denticulatis sparse sericeo-pubescentibus, floribus in corymbos paucifloros subsessiles erectos dispositis, pedicellis crassiusculis 2-bracteolatis, calycis tubo turbinato lobis lanceolatis, petalis orbicularibus patentibus roseis, staminibus petalis æquilongis, stylis elongatis tomentosis, baccis globosis.

P. ramosissimum, *Nutt. in Torr. & Gr. Fl. N. Am.* vol. i. p. 474. *Walp. Rep.* vol. v. p. 660. *Wenzig. in Linnæa*, vol. xxxviii. (1856), p. 115. *Brandegee. Fl. S. W. Colorado*, p. 236. *S. Wats. Bot. Calif.* vol. ii. p. 445. *Coulter, Man. Rocky Mt. Bot.* p. 89.

A genus of a single species, so closely allied to *Amelanchier*, that it was reduced to the latter in the "Genera Plantarum," because the character taken from the fruit upon which it was founded, and which had been incorrectly described, did not hold good. This reduction has not been accepted by American botanists, and a better knowledge of the habit of the plant affords ample characters for the retention of the genus. In *Amelanchier* the leaves are broad, membranous and serrate, the flowers are racemose, the calyx-tube short, and the petals oblong. In *Peraphyllum* the leaves are narrowly oblanceolate, flowers in subsessile corymbs, the calyx-tube cylindric, and petals orbicular. In both the fruit is globose, fleshy and edible.

Peraphyllum ramosissimum seems to have a very interrupted distribution, being nowhere very common, but occupying a wide area, from the Blue Mountains in Oregon to S.W. Colorado, Southern Utah, and California. It has been grown in the Arboretum of Kew for upwards of twenty years, where it forms a shrub about three feet high, but was never observed to flower till May, 1894.

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It is probably one of Dr. Asa Gray's seed contributions to the Royal Gardens.

Descr.—A much-branched shrub, two to six feet high; bark grey; branchlets short, rigid. *Leaves* one to two inches long, obovate-oblong, or narrowly oblanceolate, acute, obtuse, or apiculate, narrowed into a very short petiole, quite entire, or rarely sparingly toothed towards the tip, silkily pubescent, at length glabrescent. *Flowers* three-quarters of an inch diam., erect, in small, subsessile, erect, branched corymbs; pedicels rather stout, one-fourth to one half in. long, with one or two small linear bracts. *Calyx-tube* shortly cylindric or subcampanulate, silky; teeth narrow, erect, shorter than the tube, persistent. *Petals* orbicular, spreading, white, with a rose-colrd. disk. *Stamens* many, as long as the petals; anthers broadly oblong, yellow. *Ovary* 2- or incompletely 4-celled; styles 2–3, long, silky; stigmas capitate. *Berry* pendulous, half an inch diam., globose, fleshy. *Seeds* compressed, acutely margined.—*J. D. H.*

Fig. 1, Flower with the petals removed; 2, base of calyx and styles; 3, vertical section of ovary; 4, fruit:—All but fig. 4 *enlarged.*

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Tab. 7421.

ROSA Luciæ.

Native of Japan and China.

Nat. Ord. Rosaceæ.—Tribe Roseæ.

Genus Rosa, *Linn.; (Benth. & Hook. f. Gen. Plant.* vol. i. p. 625.)

Rosa (Synstylæ) *Luciæ*; frutex ramis prostratis, ramulis floriferis glabris sparse aculeatis, aculeis uncinatis, foliolis 5–9 ovatis elliptico-ovatis v. ovato-rotundatis utrinque glabris firmis mucronatis simpliciter dentatis superioribus breviter acuminatis, stipulis strictis denticulatis v. fimbriatis longe acuminatis rectis v. divaricatis auriculis angustis, petiolo glabro nudo v. aciculato v. subglanduloso, floribus solitariis v. subcorymbosis, bracteis caducis integris denticulatisve, pedicellis glabris subglandulosis v. rarius dense glanduloso-pubescentibus et aciculiferis, calycis tubo obovoideo ellipsoideo v. globoso glabro raro glanduloso-pubescente, sepalis ovato-oblongis lanceolatisve breviter v. longius acuminatis caudatisve integris pinnatifidisve deciduis, petalis ¼–⅔ poll. latis orbiculari-obovatis retusis albis, disco prominulo, stylis velutinis inferne connatis, fructibus parvis globosis lævibus purpureis v. coccineis.

R. Luciæ, *Franch. et Rochebr. in Bull. Soc. Bot. Belg.* vol. x. (1871), p. 324, et vol. xv. (1876), p. 204. *Crepin Prim. Monogr. Ros. fasc* 3, p. 258; *et in Bull. Soc. Bot. Belg.* vol. xiii. (1874), p. 251, & vol. xvii. (1879), p. 285; *et in Comt. Rend. Bot. Soc. Belg.* vol. xxv. ii. p. 13. *Franch. & Sav. Enum. Pl. Jap.* vol. i. p. 135, *et* vol. ii. p. 344. *Forbes & Hemsl. in Journ. Linn. Soc.* vol. xxiii. (1887), p. 251.

R. Wichuraiana, *Crepin et Desegl. in Bull. Soc. Bot. Belg.* vol. xiv. (1876), p. 204, *et* vol. xxvii. (1888), p. 189. *J. G. Jack in Gard. & Forest.* vol. iv. 1 (1891), p. 44, *et* vol. v. (1892), p. 367. *Sargent l. c.* vol. iv. ii. (1891), p. 570, fig. 89.

R. Maximovicziana, *Regel in Act. Hort. Bot. Petrop.* vol. v. (1877), p. 378.

R. moschata, *Benth. Fl. Hongkong*, p. 106.

Rosa Luciæ is most closely allied to *R. multiflora*, Thunb., figured at t. 7119 of this work, is as variable, and occupies precisely the same geographical area. It differs remarkably from that plant in its prostrate habit, much smaller, rounder leaflets; usually much larger flowers, not collected in large compound corymbs, and in its pisiform fruit. Franchet and Savat enumerate no fewer than eight Japanese varieties of it, differing in foliage, naked or glandular-pubescent pedicels, form and length of sepals, size of the petals, &c. It is so difficult to distinguish several of these varieties from those of *R. microphylla*, that

June 1st, 1895.

M. Crepin suggests the possibility of some of these being of hybrid origin between the two species. The plant which flowered at Kew, and of which a specimen is here figured, is very much larger in all its parts than the indigenous ones in the Herbarium, in some of which its flowers are not larger than the area occupied by the stamens in the plate, and are in crowded, short panicles, with almost glandular-tomentose very short peduncles and pedicels and calyx-tube. The sepals, too, of the Kew specimen are much shorter, broader, and more ovate than in the ordinary state of the plants when they are often drawn out into caudate points, and are cut or pinnatifid on one or both sides.

The discoverer of *R. Luciæ* was, according to Crepin, M. Callery, whose specimens gathered in China in 1884, are in the Herbarium of the Jardin des Plantes. It appears to be very common in Japan, where, according to Maries, it ascends the mountains to 7000 ft. elevation. There are specimens in Kew Herbarium from Corea and Manchuria, from various places in East China to as far south as Hong Kong; Hance collected it at Whampoa; Tate in the Quantung Provinces; and Oldham in Formosa.

Plants of *R. Luciæ* were received from Professor Sargent, Director of the Harvard Arboretum, Boston, U.S.A., in 1891,* which flowered freely in August, 1894, in the Arboretum of the Royal Gardens, Kew, and fruited in the following October. It is, of course, perfectly hardy. According to Professor Sargent, who gives a description and excellent figure in "Garden and Forest," adding that *R. Luciæ* was sent by Mr. Louis Späth of Berlin in 1888 to the Harvard Arboretum, where it produces prostrate stems ten to fifteen feet long in a single season, and covers the ground as with a dense mat. Also that it has been very largely used by the Parks Department of the City of Boston "for covering rocky slopes, &c., where its remarkable habit, hardiness, the brilliancy of its lustrous foliage and the beauty of its flowers, which appear when most shrubs are out of bloom, certainly recommend it to the attention of the cultivators of hardy plants." In another volume of

---

* It must, however, have been introduced into England at an earlier period, for there is a good specimen of it in the Kew Herbarium received from Canon Ellacombe in 1880.

"Garden and Forest" Mr. Jack describes it as "so thickly covering the ground with its white flowers as to almost give the effect of snow; and its fragrance as not that of most wild roses, but more nearly suggesting the Banksian rose, though it is sweeter, and without a certain disagreeable quality of the Banksian."

The name *Luciæ* was given in compliment to Madame Lucie Savatier, who accompanied her husband to the far East, and actively aided him in his scientific exploration of Japan.—*J. D. H.*

Fig. 1, Calyx and styles; 2 and 3, stamens:—*Enlarged.*

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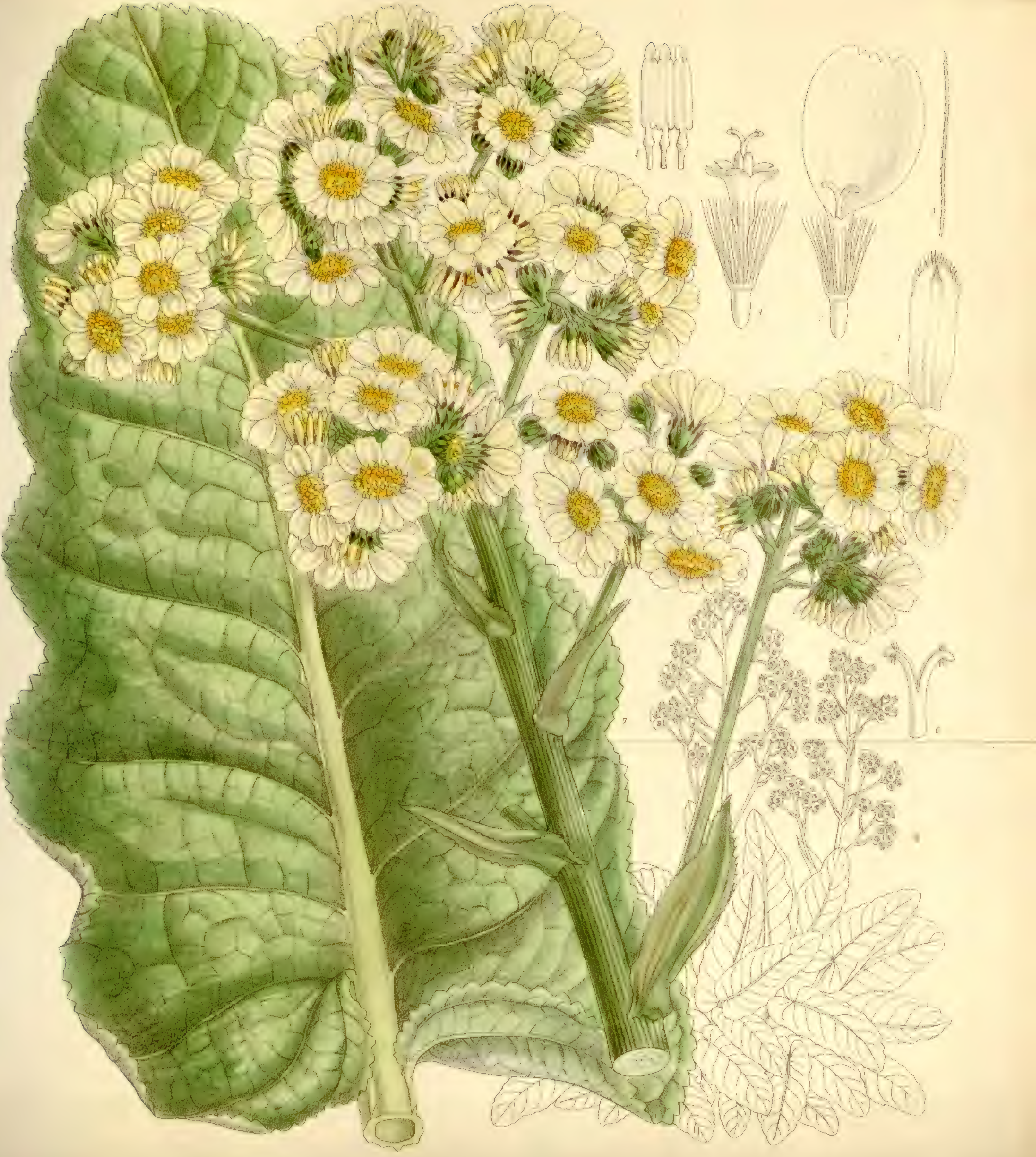

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TAB. 7422.

SENECIO HUALTATA.

Native of Chili and Argentaria.

Nat. Ord. COMPOSITÆ—Tribe SENECIONIDEÆ.

Genus SENECIO, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 466.)

SENECIO *Hualtata*; herba elata, robusta, junior araneosa, caule simplici erecto tereti striato, foliis radicalibus 1½–2 pedalibus oblongo-ovatis obtusis basi inæqualiter cordatis marginibus undulatis dentatisque supra laete viridibus subtus saepe cærulescentibus v. purpurascentibus, costa crassa, nervis utrinque 8–10 patentibus, petiolo semipedali crasso fistuloso, foliis caulinis paucis sessilibus lanceolatis serratis, capitulis ad apices ramorum paniculæ amplæ congestis breviter v. longius pedicellatis diam. pollicaribus, involucri brevis pauci-bracteati foliolis lineari-oblongis obtusis apicibus barbellatis, radiis 12–16 late oblongis apice crenatis pallide stramineis, disci corollis aureis, acheniis glabris.

S. Hualtata, *Bertero, ex DC. Prodr.* vol. vi. p. 417. *C. Gay Fl. Chili,* vol. iv. p. 194. *Hook. & Arn. in Hook. Journ. Bot.* vol. iii. (1841), p. 340. *Griseb. Symb. Fl. Argent.* p. 206, *et Pl. Lorentz.* p. 145. S. fistulosus, *Poepp. Lessing in Linnæa,* vol. vi. (1831), p. 246. Cineraria gualtata, *Gillies mss.*

Senecio Hualtata belongs to a group of gigantic herbaceous Ragworts, which includes *S. sagittifolius*, Baker (Tab. 7322), all natives of extra-tropical South America. Five or six species at least have been described; but it is impossible to say from Herbarium specimens how far they are all distinct. *S. Hualtata* is the best known of them, having a very wide distribution, and having been collected by many botanists. C. Gay describes it as inhabiting the whole Republic of Chili, meaning, no doubt, the more temperate parts, for I find no evidence of its occurring further south than Valdivia, in lat. 40°. It crosses the Andes to the western slopes, where it frequents water-courses, and where it has been found as far north as Tucuman, in lat. 25° S. by Lorentz and Hieronymus; thus giving it a range of 15° lat. Its native name in Chili generally is *Hualtata* or *Gualtata*; but at Valdivia, according to Mr. Reed, it is called "Lengua de Vaca."

The Royal Gardens, Kew, are indebted for seeds of this fine plant to Mrs. J. S. Floyer of Basingstoke, whose daughter,

JULY 1ST, 1895.

Mrs. Glynne Williams, sent them in 1890 from Vipos, thirty kilometres north of the city of Tucuman. The Kew plant, after having stood for several years without protection, on a slope close to the pond opposite the Palm House, in June of last year sent up its flowering stem five feet high, and flowered profusely.

Descr.—A tall, very stout herb, in a young state sparingly woolly; flowering stem five feet high, terete, striate. *Leaves* chiefly radical, twelve to eighteen inches long, by four to six broad, oblong-ovate, broadest at the unequally truncate or cordate base, bright green above, more blue-green or purplish beneath, margin undulate and crenate-toothed, midrib very stout; nerves eight to ten pairs, spreading; petiole about as long as the blade, stout, hollow; upper or cauline leaves much smaller, sessile lanceolate, toothed. *Head*, an inch in diameter, shortly pedicelled in crowded clusters at the ends of the naked branches of a pyramidal panicle one to two ft. high. *Involucre* cylindric; bracts linear-oblong, green; tips brown, bearded. *Ray-flowers* twelve to sixteen, limb broadly obovate-oblong, pale straw-colrd., tip crenate. *Disk-flowers* many, golden-yellow. *Achenes* (ripe, not seen) glabrous; pappus silvery.—*J. D. H.*

Fig. 1, Bract of involucre; 2, fl. of the ray; 3, pappus hairs; 4, fl. of disk; 5, stamens; 6, style-arms of disk fl.:—*All enlarged*; fig. 7, *reduced* view of the whole plant.

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TAB. 7423.

PYRUS CRATÆGIFOLIA.

Native of Italy.

Nat. Ord. ROSACEÆ.—Tribe POMEÆ.

Genus PYRUS, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 626.)

PYRUS *cratægifolia*; arbor v. arbuscula, ramulis petiolis corymbisque pubescentibus, foliis gracile petiolatis late ovatis acutis subtus lanatis demum glabratis lobulatis, lobulis utrinque 4–6 grosse dentatis, petiolo gracili, stipulis brevibus acutis caducis, corymbis terminalibus laxifloris pubescentibus, pedicellis gracilibus elongatis roseis, calycis tomentosi tubo campanulato, lobis lanceolatis deflexis demum deciduis, petalis orbiculatis niveis, staminibus ad 15, stylis 4–5 elongatis erectis tomentosis basi connatis, baccis ellipsoideis rubris.

P. cratægifolia, *Targ. Tozz. ex Savi Tratt. Alb. Tosc.* ed. ii. vol. i. (1801), p. 169. *Archang. Comp. Fl. Ital.* p. 232.

P. florentina, *Targ. Tozz. in Mem. Soc. Moden.* vol. xx. pars. ii. (1829), p. 302· t. 20. *DC. Prodr.* vol. ii. p. 628; *Walp. Rep. Bot.* vol. ii. p. 53.

P. torminalis B., *Penore Syll. Fl. Neap.* 243.

Mespilus florentina, *Bertol. Amœn. Ital.* p. 29.

Cratægus florentina, *Zuccagn. Cent. Prim. Obs. Bot. Hort. Florent.* vol. i. (1806), *ex Roem. Collect.* 142. *Bertol. Fl. Ital.* vol. v. p. 142.

Sorbus florentina, *Nym. Syll. Fl. Europ.* p. 266.

A native of Italy, and apparently a rare plant, growing in woods near Florence, Bologna, and Lucca, and a few other spots in the north of the Peninsula, but local. Its nearest ally is perhaps *P. torminalis*, from which it differs in the more cordate base of the leaves which are inciso-serrate and tomentose beneath, in the simple terminal corymb with very long pedicels, and in the four to five filiform styles, and in the small, ellipsoid, red fruit.

P. cratægifolia forms a bush about four feet high in the Arboretum of the Royal Gardens, Kew, flowering in June, and was, I believe, raised from seed received from the late Mr. Grover of Florence, one of the most acute and accomplished of Italian Botanists.

Descr.—A bush or small tree, with slender branches and dark brown bark; young branches, leaves beneath, and young inflorescence copiously woolly, at length glabres-

JULY 1ST, 1895.

cent. *Leaves* thin, one and a half to two and a half inches long, broadly ovate, or almost orbicular in outline, acute, base truncate, margins cut into four to six triangular, coarsely-toothed, ovate lobes, dark green above, with as many sunk nerves as lobes, pale woolly, at length glabrate beneath; petiole one half to two-thirds of an inch long, slender, reddish; stipules small, ovate, acute, deciduous. *Corymbs* terminal, lax-fld., tomentose; rachis and long pedicels rose-pink, pedicels very slender, an inch to an inch and a half long. *Flowers* nodding, nearly an inch in diameter. *Calyx-tube* narrowly campanulate, produced much beyond the ovary; lobes lanceolate, as long as the tube, reflexed, at length deciduous. *Petals* inserted in the mouth of the calyx, orbicular, notched at the tip, pure white, spreading. *Stamens* ten to twenty, filaments glabrous. *Styles* four or five, elongate, villous, united at the base; stigmas capitate. *Berry* half an inch long, broadly ellipsoid, or elliptic-oblong, red.—*J. D. H.*

Fig. 1, Flower with the petals removed; 2, vertical section of ovary:—*both enlarged*; 3, berries of the *natural size*.

7424.

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TAB. 7424.

ARISTOLOCHIA UNGULIFOLIA.

Native of Borneo.

Nat. Ord. ARISTOLOCHIACEÆ.

Genus ARISTOLOCHIA, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 121.)

ARISTOLOCHIA (Diplolobus) *ungulifolia*; volubilis, glabra, foliis amplis ambitu suborbicularibus profunde trilobis, lobis oblongisdecurvis sinu rotundato, lateralibus oblongis apice rotundatis intermedio oblongo-lanceolato obtuso, floribus in racemos breves dispositis, perianthio basi in stipitem cylindraceam producto, dein in vesicam late oblongam dorso bigibbosam inflato, ultra vesicam in tubum angustum recurvum producto, ore late infundibulari, limbo elongato spathulato erecto villoso marginibus revolutis.

A. ungulifolia, *Masters in Journ. Linn. Soc.* vol. xiv. (1875), p. 494; in *Gard. Chron.* (1880), vol. ii. p 116, f. 28.

According to specimens in the Herbarium of Kew, *A. ungulifolia* is a native of Borneo, where it was discovered by Messrs. Motley and Barber in the province of Labuane. It is very distinct from any hitherto published species, and probably unique in the presence of two curious swellings in the dorsal surface of the saccate base of the perianth. These swellings correspond to depressions with ciliate margins in the inner surface of the same sack, and are presumably concerned in the pollinisation of the plant by insects. The Indian ally of *A. ungulifolia* is *A. indica*, Linn., a frequent plant all over tropical India.

A. ungulifolia was first described by Dr. Masters, F.R.S., from specimens exhibited in 1880 at the Exhibition of the Royal Horticultural Society, South Kensington, by Mr. Mortimer, gardener to Major Storer, Purley Park, Reading. The specimen here figured was received at the Royal Gardens, Kew, from H. N. Ridley, M.A., F.L.S., Director of Gardens and Forests, Singapore, in November, 1894, and which flowered in a stove in the following November.

Descr.—A tall, glabrous climber, with slender, terete, green stems; branches obscurely angled. *Leaves* six to seven inches long and broad, suborbicular in outline, abruptly narrowed into the petiole at the broad hardly cordate base, deeply 3-lobed, pale green, and convex on the upper surface, with reticulated veins; lobes subparallel, decurved, lateral oblong, rounded at the tip; mid-lobe longest, oblong-lanceolate, narrowed at the obtuse tip; sinus between the lobes narrow, base rounded; petiole one to one and a half inch long, deeply grooved on the upper side; stipular leaves none. *Flowers* about three inches long, in few-fld. corymbs. *Perianth* divisible into four sections; 1, a short, narrow, terete, solid stipes, about a quarter of an inch long; 2, a dull purple, broadly obovoid, oblong bladder, nearly an inch long, with two collateral, dorsal bosses on the back below the next section; 3, a curved tube, about as long as the bladder, expanding into a small, funnel-shaped mouth, with recurved margins, from the dorsal margin of which arises; 4, a spathulate, erect, or reclined, tomentose, red-brown limb, an inch long, with a terminal apiculus, and revolute margins; inner surface of the bladder and mouths of the bosses villous. *Column* cup-shaped round the six stigmas, and with a few hairs at the base.—*J. D. H.*

Fig. 1, Section of tube of perianth; 2, column with the ovary and pedicel like base of the perianth; 3, column:—*All enlarged.*

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TAB. 7425.

NEUWIEDIA GRIFFITHII.

Native of Malacca.

Nat. Ord. ORCHIDEÆ.—Tribe APOSTASIEÆ.

Genus NEUWIEDIA, *Blume*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 635.)

NEUWIEDIA *Griffithii*; foliis lineari-lanceolatis acuminatis, scapo breviusculo, racemo hispidulo, bracteis ovato-lanceolatis flores subæquantibus erectis, perianthio ovoideo albo, filamentis brevibus liberis quam antheras oblongas multo brevioribus.

N. Griffithii, *Reichb. f. Xen. Orchid.* vol. ii. (1874), p. 16. *Rolfe in Journ. Linn. Soc.* vol. xxv. (1890), p. 235. *Hook. f. Fl. Brit. Ind.* vol. vi. p. 176.

On Tab. 7368 is figured, for the first time, from living specimens, the remarkable Malayan genus of *Orchideæ*, *Neuwiedia*, and under the description of it (*N. Lindleyi*) it is stated that another species, *N. Griffithii*, is also in cultivation at Kew. The latter has since flowered (in September, 1894), and is here represented. *N. Griffithii* differs from *N. Lindleyi* in its much smaller size, shorter spike, broader bracts, and very small white flowers, which are much more pubescent. It was discovered by Dr. Griffith in Malacca, and it was subsequently collected there by the late Dr. Maingay, and lastly, by Mr. Ridley, to whom the Royal Gardens are indebted for living plants, as they were to him for those of *N. Lindleyi*. It has also been found in the province of Perak (in the Malayan Peninsula) by collectors sent by Dr. King from the Royal Botanical Gardens, Calcutta.

There still remain two Javan species of *Neuwiedia*, which are very imperfectly known, and from dried specimens alone, *N. veratrifolia* and *N. Zollingeri*, Blume, together with *N. Curtisii* of Rolfe of Penang, and *N. calanthoides* of New Guinea, all of which require investigation from living specimens before the species of the genus can be pronounced to be satisfactorily established. With regard to *N. Lindleyi*, I have, with regret, to state that the colouring of the flower in the plate is of far too bright a golden-yellow, and in this respect very far from a faithful reproduction of the artist's drawing, which is (as with all the original drawings published in the *Botanical Magazine*) preserved in the Herbarium of the Royal Gardens for verification of the published plates. The true colour is a pale primrose.

Descr.—Whole plant sixteen inches high, quite glabrous, except the spike. *Leaves* four to ten inches long by one to one and a half broad, erect, elliptic-lanceolate, acuminate, many-nerved. *Spike* shortly peduncled, four to six inches long in flower; rachis, bracts, and flowers hispidly pubescent; bracts green, ovate-lanceolate, about as long as the very shortly pedicelled flowers. *Ovary* trigonous, produced into a very short neck. *Perianth* deflexed, one-third of an inch long, ovoid, white; sepals boat-shaped, pubescent dorsally convex, with a short infra-apical beak; petals like the sepals, but glabrous, with a stout dorsal, hispidulous keel, produced into a short, blunt spur. *Anthers* short, broad. *Stigma* obscurely 3-lobed.—*J. D. H.*

Fig. 1, Bract and flower; 2, petal viewed from within, and 3 from without; 4, column; 5, anther:—*All enlarged.*

7426

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TAB. 7426.

RUBUS LASIOSTYLUS.

Native of China.

Nat. Ord. ROSACEÆ.—Tribe RUBEÆ.

Genus RUBUS, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 616.)

RUBUS *lasiostylus*; frutex suberectus, fere eglandulosus, aculeatus, caulibus teretibus fusco-purpureis pruinosis demum niveis aculeis gracilibus rectis v. lente curvis instructis, ramulis petiolisque glabris pubescentibusve, foliis pinnatis, petiolo gracili rubello aculeato, foliolis 3–5 duplicato serrulatis subtus niveo-tomentosis nervis pallide roseis, lateralibus ovatis acutis, terminali multo majore integro v. trilobo basi rotundato v. subcordato, stipulis oblique lanceolatis acutis submembranaceis, cymis fere terminalibus sessilibus v. breviter pedunculatis paucifloris, pedicellis elongatis aculeatis, floribus nutantibus, petalis orbicularibus sanguineis sepalis lanceolatis recurvis multo brevioribus, carpellis siccis dense lanatis lacunosis, stylis gracilibus rectis lanatis.

R. lasiostylus, *Focke in Hook. Ic. Pl.* t. 1951.

R. lasiostylus is allied to several Asiatic species, all with more or less erect stems, white-tomentose undersurface of the leaves, long calyx-lobes, small red petals, and villous carpels. Of these two, *R. niveus*, Wall., and *R. lasiocarpus* abound in the temperate regions of the Himalaya; both are extremely variable, and their forms have given origin to many species, some of which are founded on specimens, not even on varieties. In both the ripe carpels are either dry or fleshy, and the endocarp of the fruit is lacunose; both are usually much more strongly armed plants than is *R. lasiostylus*, but they are very variable in this respect.

R. lasiostylus is a native of China, where it was discovered in the Province of Hupeh, by Augustine Henry, Esq., F.L.S., in 1888; since which period Mr. Hemsley informs me that very large numbers of Chinese species of *Rubus* have been added to the Kew Herbarium, bringing the total up to about sixty. Judging from this, and having regard to the extent of country in China that is botanically unexplored, especially the mountain regions, there can

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be no doubt but that this country is the head-quarters of the genus, greatly surpassing the Himalaya, whence only forty species have been described. Europe may boast of a far greater number of recorded species; but the vast preponderance of these are closely allied forms of one type, as to the limits of which forms botanists have the most divergent opinions, whereas in China and India many types of the genus occur that have no allies at all in Europe.

R. lasiostylus was raised at the Royal Gardens, Kew, from seeds received in 1889 from Mr. Henry, who during his residence at Ichang, on the Yangtse-kiang River, 700 miles from its mouth, transmitted to Kew magnificent botanical collections abounding in novelties. The plant flowered in June, 1894, for the first time, and has proved to be perfectly hardy.

Descr.—A suberect shrub, covered with slender, spreading, straight, or slightly curved prickles, which are stronger towards the base of the stem. *Shoots* four feet high, half an inch in diameter and very aculeate at the base, covered with a primrose-purplish bark, that turns nearly white in winter, young branches and petioles pubescent. *Leaves* pinnate, three to five inches long; leaflets three to five, sharply, irregularly, doubly serrate, dark green and rugose above, young suffused with red; white tomentose beneath, with prominent pale, reddish nerves, and a setose midrib; lateral leaflets one and a half to two and a half inches long, ovate, acute, base acute or rounded, terminal lobe much larger and broader, often 3-lobed; petiole slender, red, prickly; stipules lanceolate. *Flowers* in few-fld. subterminal corymbs; pedicels one to one and a half inch long, decurved, red. *Stamens* an inch across the sepals, nodding. *Sepals* lanceolate, caudate-acuminate, brown-tomentose, or glabrescent; margins pale. *Petals* orbicular-spathulate, about half as long as the sepals, bright blood-red. *Achenes* crowded, woolly, dry, lacunose; style long, straight, villous—*J. D. H.*

Fig. 1, Petal; 2, young, and 4, ripe carpel; *all enlarged*; 3, cyme of rip fruit of the *natural size.*

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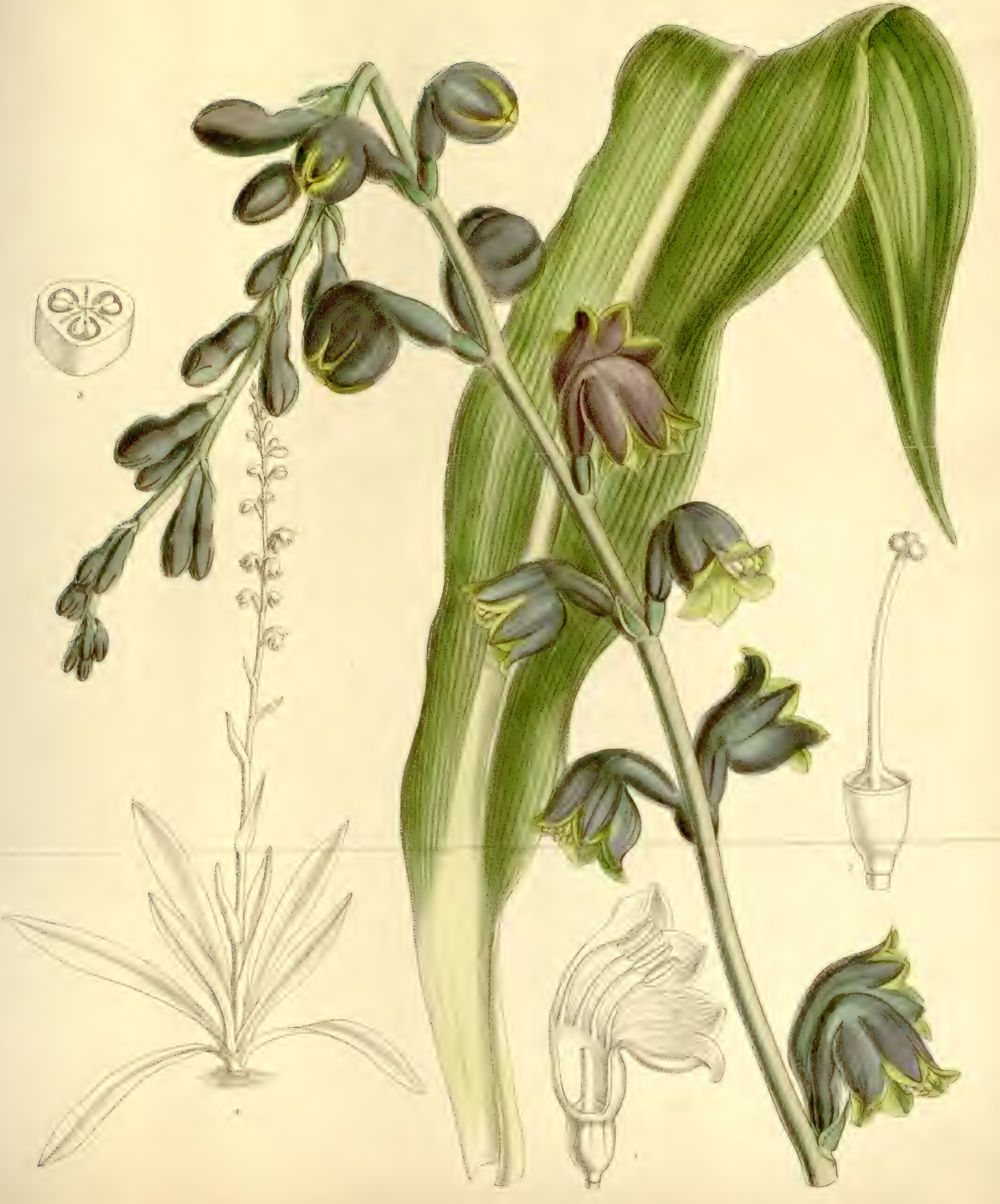

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TAB. 7427.

PROCHYNANTHES BULLIANA.

Native of Mexico.

Nat. Ord. AMARYLLIDEÆ.—Tribe AGAVEÆ.

Genus PROCHYNANTHES, *S. Wats. in Proc. Amer. Acad.* vol. xxii. p. 457.

PROCHYNANTHES, *Bulliana*; rhizomate tuberoso fibris coronato, foliis radicalibus paucis rosulatis oblanceolatis acutis subcoriaceis persistentibus glabris margine denticulatis, pedunculo elongato foliis paucis reductis lanceolatis prædito, floribus geminis sessilibus in spicam laxam elongatam dispositis, bracteis ovatis parvis, perianthio purpureo-viridulo ad medium decurvato tubo deorsum oblongo sursum campanulato, lobis ascendentibus suborbicularibus, staminibus inclusis ad medium tubi insertis, stylo perianthio æquilongo apice lobis tribus patulis orbicularibus pubescentibus stigmatosis prædito.

Bravoa Bulliana, *Baker in Gard. Chron.* 1884, vol. ii. p. 328; *Handb. Amaryllid.* p. 161.

This fifth genus of *Agaveæ* has been discovered since the publication of Bentham and Hooker's *Genera Plantarum.* It is intermediate between *Polianthes* and *Bravoa*, differing from both by its more coriaceous persistent leaves and greenish-brown flowers abruptly decurved and dilated at the middle. The original species, *P. viridiflora*, S. Wats., which was discovered by Dr. Palmer in 1886 in the province of Jalisco, has long pedicels, which are articulated at the middle. In the present plant the flowers are larger and quite sessile. It was imported from Mexico by Mr. William Bull, and first flowered by him in the year 1884, at which date I described it in the *Gardener's Chronicle*, under the genus *Bravoa.* Mr. Bull presented a plant to the Royal Gardens, Kew, and our drawing was made from this when it flowered in an unheated frame last summer. This is the first time the genus has been figured, and the original species, so far as I am aware, has never been brought into cultivation.

Descr.—*Rootstock* tuberous, crowned by a dense mass of fibres. *Leaves* few in a radical rosette, oblanceolate, acute, subcoriaceous, persistent, bright green, a foot or more long, two inches broad at the middle, denticulate on the pale horny margins. *Peduncle* erect, twice as long as the

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leaves, furnished with several lanceolate reduced leaves. *Flowers* in pairs, forming a very long, lax, simple spike, quite sessile; bracts ovate, small. *Perianth* brownish-green; tube abruptly decurved and dilated at the middle, oblong in the lower half, campanulate in the upper half; lobes suborbicular, ascending. *Stamens* inserted at the base of the dilated upper half of the perianth; filaments filiform; anthers linear-oblong, versatile. *Style* as long as the perianth; stigmatose apex of three spreading orbicular pubescent lobes.—*J. G. Baker.*

Fig. 1, A flower cut open to show the stamens; 2, ovary and style; 3, horizontal section of the ovary: *all enlarged*; 4, whole plant: *much reduced.*

7428

M.S. del, J.N Fitch lith.

[illegible]

TAB. 7428.

SACCOLABIUM MOOREANUM.

Native of New Guinea.

Nat. Ord. ORCHIDEÆ.—Tribe VANDEÆ.

Genus SACCOLABIUM, *Bl.* (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 578.

SACCOLABIUM (Genuineæ) *Mooreanum*; caule brevi crasso, foliis oblongis lineari-oblongisve apice 2-lobis crasse coriaceis, pedunculis robustis decurvis viridibus purpureisve, vaginis remotis brevibus obtusis pedunculo arcte appressis brunneis, spicis densifloris oblongis, bracteis lineari-lanceolatis, floribus subglobosis pallide viridibus v. roseis, sepalis conniventibus lineari-oblongis obtusis concavis, petalis obovatis obtusis, labelli carnosi 3-lobi lobis lateralibus semi-orbicularibus erectis terminale parvo cymbiforme, calcare sepalis duplo longiore dependente clavato obtuso, columna brevi antice in brachia 2 truncata producta, anthera galeæforme vertice lobulato.

S. Mooreanum, *Rolfe in Kew Bulletin*, 1893, p. 64.

Mr. Rolfe describes *S. Mooreanum* as allied to *S. minus*, Reichb. f., and to "two or three other Polynesian species, having a peculiar decurved appendage in front of the column, looking down as it were into the spur." This appendage, which is well shown in fig. 2 of the plate, seems to be a prolongation of the sides of the column or its clinandrium, upon the truncate face of which the very large gland of the pollinia rests, and may hence be compared with a rostellum.

Mr. Rolfe further points out the similarity of this "appendage" to what occurs in *Uncifera*, Lindl., a genus I have reduced (*Fl. Brit. Ind.* vi. 65) to *Saccolabium*; in which it is seen to be a prolongation of the column itself into two parallel arms. This is shown in my drawings of both species of *Uncifera* (Hook. Ic. Pl. t. 2134, 2135), in one of which, *S. acuminatum*, the arms are truncate with the gland of the pollinia placed exactly as in *S. Mooreanum*, whilst in the other, *S. obtusifolium*, they are more acute, or rather, more obliquely truncate. In short, except for the beaked anther and incurved spur of the former the flowers of *S. Mooreanum* and *acuminatum* are (sepals, petals, lip, spur and column) almost identical; and if *Uncifera* is to be kept up, it claims both these species.

Further, the remarkable characters of the pollinia of *Uncifera*, of the very large gland, and the broad wings of the strap, which are recurved when dry, are repeated in *S. Mooreanum*, the only difference being that the pollen masses are raised on an incurved stipes on the face of the strap in *Uncifera*, and sessile in *S. Mooreanum*.

S. Mooreanum was imported from New Guinea by Messrs. F. Sander & Co. of St. Albans, from whom both forms were obtained by the Royal Gardens, and which flowered in the Tropical Orchid House in January of this year.

Descr.—*Stem* stout, short. *Leaves* four to six inches long, distichous, oblong, 2-lobed, coriaceous; margins recurved, bright green above, paler and mottled beneath. *Scape* as long as the leaves, stout, decurved, green or red-purple and speckled; sheaths two or three, distant, short, obtuse, brown, appressed; bracts small, lanceolate. *Spike* two to three inches long, oblong or ovoid, very dense-fld. *Flowers* subglobose, rose-purple or greenish white, one-third of an inch in diameter. *Sepals* conniving, oblong, obtuse, concave. *Petals* conniving, obovate-oblong. *Lip* small, side lobes rounded erect; terminal lobe cymbiform, fleshy, subacute, thickened transversely at the base; spur longer than the sepals, clavate, dependent, without internal septum, or dorsal scale below the column. *Column* short, stout, produced in front into truncate arms, on which the gland of the pollinia rests. *Anther* helmet-shaped, with four bosses on the crown; strap of pollinia trapeziform at the apex, with the sides recurved, bearing two sessile pollen masses; gland very large, obtuse.—*J. D. H.*

Fig. 1, Front view of white fld. var.; 2, lip and column; 3, anther; 4, pollinia, all from the same; 5, side view of red-fld. var.:—*All enlarged.*

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TAB. 7429.

SPIRÆA BRACTEATA.

Native of Japan.

Nat. Ord. ROSACEÆ.—Tribe SPIREÆ.

Genus SPIRÆA, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 611.)

SPIRÆA *bracteata*; glaberrima, ramulis angulatis, foliis orbiculato-obovatis rotundatisve ad apicem rotundatam crenatis subtus glaucis nervis gracilibus, petiolis brevibus, corymbis multifloris hemisphericis foliolosis, calycis lobis ovatis fructu erectis, petalis albis truncato-orbiculatis imbricatis, staminibus ad 20 petalis paullo brevioribus, disco elevato crenato, carpellis dorso medio lanatis maturis stylo demum deciduo parum brevioribus, seminibus breviter appendiculatis, testa lævi arcte appressa.

S. bracteata, *Zabel in Wittm. Gartenzeit.* vol. iii. (1884) p. 496. *Strauch. Spiräen*, p. 45. *Dippel Handb. Laubholzk*, p. 468.

S. nipponica, *Maxim. in Bull. Acad. Petersb.* vol. xxxi. (1868) p. 39; *Diagn. Pl. Nov. Asiat.* (*Mel. Biol.*) vol. xii. p. 934.

S. media, *F. Schmidt, Œstr. Baumz.* 53, t. 54.

S. media, *var.* rotundifolia, *Nichols. in Gard. Chron.* 1885, vol. i. p. 283, Fig. 26; and *Gard. Dict.* vol. iii. p. 477.

S. rotundifolia, fl. albo, *Hort. P. F. von Siebold.*

Spiræa bracteata is well distinguished by its nearly orbicular leaves, its hemispheric heads of flowers, the broad imbricating petals of which so closely overlap as to resemble a monopetalous corolla. The name is derived from the presence of numerous small leaves on the branches of the corymbs, which are concealed by the sweet-scented flowers. Another peculiarity is the great size of the glands of the disk, which surround the mouth of the calyx-tube, and resemble a string of large beads.

Mr. Nicholson informs me that *S. bracteata* was introduced from Japan by Siebold, and distributed from his old nursery at Leyden, under the name of *S. rotundifolia*. It was described as *S. nipponica* by Maximovicz, two years after it had been published by Zabel, and there are specimens under that name in the Kew Herbarium, from the Imperial University of Japan, collected on Mount Fusiyama, and from M. Maries, who found it at elevations of two to

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seven thousand feet in Central Japan. Maximovicz considered that its nearest ally is his *S. mongolica*, which differs in having triple-nerved leaves.

The drawing was made from a specimen that flowered in the Arboretum of the Royal Gardens, Kew, in June, 1894.

Descr.—A small glabrous shrub; bark on the main branches dark brown, young branches bright red. *Leaves* one half to one inch long and broad, orbicular, or very broadly obovate, with a few broad crenatures on the rounded tip; petiole very short, nerves slender, spreading. *Corymbs* two inches in diameter, subsessile, hemispherical; dense-fld.; branches with small green foliaceous bracts concealed by the very shortly pedicelled flowers, which vary from a quarter to nearly half an inch in diameter. *Calyx-lobes* triangular-ovate, hairy within. *Petals* orbicular, truncate, so closely overlapping as to resemble a cupular broadly 5-lobed corolla, white. *Disk* a crenate ring at the mouth of the calyx-tube. *Stamens* shorter than the petals. *Carpels* dorsally woolly about the middle; styles rather long.—*J. D. H.*

Fig. 1, Calyx disk and carpels; 2, petal; 3, stamens; 4, section of calyx, showing carpels:—*All enlarged.*

7430.

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TAB. 7430.

PYRUS SIKKIMENSIS.

Native of the Himalaya.

Nat. Ord. ROSACEÆ.—Tribe POMEÆ.

Genus PYRUS, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 626.

PYRUS (Malus) *sikkimensis*; arbor parva, ramulis novellis foliis subtus calycibusque tomentosis demum glabratis, foliis ovatis v. ovato-lanceolatis acuminatis serrulatis, lamina petiolo pluries longiore, stipulis setaceis, corymbis multifloris, pedunculis elongatis gracilibus, alabastris roseis, calycis tubo ellipsoideo, sepalis lanceolatis reflexis deciduis, petalis orbicularibus v. late obovato-oblongis, ungue brevi villoso, staminibus 25–30, stylis glabris basi connatis, baccis parvis obconico-pyriformibus.

P. sikkimensis, *Hook. f. Fl. Brit. Ind.* vol. ii. p. 373.

P. baccata indica, *Hort.*

There are in the Himalaya three species of the *Malus* group of Pyrus; 1, the apple, which is indigenous in the Western hills, as well as cultivated up to 11,500 ft. in Tibet; 2, the Siberian Crab, *P. baccata*, Linn., differing from the common N. Asian plant only in the smaller subpyriform fruit, a form of fruit which occurs rarely in Siberia, but which is figured in Pallas Flora Rossica. It is found from Kashmir to Kumaon, sometimes in a cultivated state, and in Bhotan and the Khasia Hills, but has not been brought from Nepal or Sikkim; 3, the plant here figured, which differs from *P. baccata* in the tomentose under surface of the leaves and calyx, and glabrous column of styles. The fruit also is speckled with white, as in *P. Pashia*, which belongs to the *Pyrus proper* section of the genus, but the spots are much smaller in *sikkimensis*.

The tree from which the specimens figured were obtained has existed in the Arboretum of the Royal Gardens for many years, and all traces of its history are lost. It is evidently a very old plant, in a gnarled condition, bearing conspicuous stout branching spurs on the trunk, owing no doubt to the poverty of the soil; and it may be assumed to have been raised from seeds sent by myself from Sikkim in 1849, now forty-five years ago, before which time no

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plants or seeds had been sent from that country. The species had, however, been discovered in Bhotan by Griffith some years earlier, and fruiting specimens collected by him are in the Kew Herbarium. I found it frequently at elevations of 7–10,000 feet in the interior of Sikkim, as a small stoutly branching tree, twenty to thirty feet high, flowering in June and July, and producing fruit of which I made an agreeable stew. The Kew tree flowers in May, and fruits in September.

Descr.—A small gnarled tree, bark brown, young shoots leaves beneath (and above in a young state) and calyx more or less woolly. *Leaves* three to five inches long, ovate, acuminate, serrulate ; petiole much shorter than the blade; stipules subulate. *Flowers* corymbose, an inch in diameter; buds rose-colrd.; pedicels one and a half to two inches long, very slender. *Calyx-tube* ellipsoid ; lobes lanceolate, recurved, deciduous. *Petals* orbicular, white, claw very short, tomentose. *Stamens* very many. *Styles* slender, connate below, glabrous. *Fruit* two-thirds of an inch diameter, broadly subglobosely pyriform, dark-red, speckled with white.—*J. D. H.*

Fig. 1, Calyx and stamens ; 2, petal :—*Both enlarged.*

7431

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TAB. 7431.

PLEUROTHALLIS SCAPHA.

Native country unknown.

Nat. Ord. ORCHIDEÆ.—Tribe EPIDENDREÆ.

Genus PLEUROTHALLIS, *Br.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 488.)

PLEUROTHALLIS (Acuminatæ) *Scapha*; glaberrima, caulibus erectis gracilibus teretibus internodiis inferioribus maculatis, 1-foliatis, vaginis appressis, folio oblongo-lanceolato crasse coriaceo suberecto basi angustato, dorso acute carinato supra saturate viridi subtus pallidiore, racemo folio multo longiore pendulo laxifloro, rachi gracillima, bracteis tubulosis albis, oblique truncatis, floribus 2½–3 poll. longis gracile pedicellatis, sepalis lanceolatis in caudas filiformes lamina multo longiores recurvas angustatis, lateralibus connatis albis rubro striatis, dorsali rubro-purpureo, petalis sepalis æquilongis e basi angusta caudato-acuminatis pallidis patenti-recurvis, labelli lobis lateralibus falciformibus decurvis, intermedio duplo longiore lineari carnoso integerrim glaberrim, columna acuta medio dorso incrassata, anthera mitriforme.

P. Scapha, *Reichb. f. in Gard. Chron.* (1874) vol. ii. p. 162. *Xen. Orchid.* vol. iii. p. 86, 247, f. 1. *Hemsl. in Gard. Chron.* (1881) vol. i. p. 784, f. 139, vol. ii. p. 42.

Pleurothallis Scapha has been long known in cultivation, having been introduced by Mr. J. Day before the year 1874, when it was described by Reichenbach. It belongs to Lindley's section *Acuminatæ*, characterized by the leaves narrowed at the base, the long racemes and the acuminate sepals, and to the subdivision of this with long-pedicelled flowers. Its nearest ally is *P. insignis*, Rolfe (Tab. 6936) which has much fewer and larger flowers, and a lip bearded at the tip. The native country of both these species is unknown, but *P. insignis* has been supposed to have been sent from Caraccas.

The specimen figured was communicated to the Royal Gardens by Mr. Moore, A.L.S., Keeper of the Glasnevin Gardens, Dublin. It flowered in a cool house in January of the present year.

Descr.—*Stem* two to five inches high, erect, rigid, terete, as thick as a crow-quill; internodes one to one and a half inch long, lower pale brown spotted with dark red, upper

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(leaf-bearing) one to two inches long, green. *Leaf* four to six inches long, oblong-lanceolate, tip recurved obtuse, narrowed to the base, thickly coriaceous, keeled dorsally, dark green above, paler beneath, nerves very obscure. *Raceme* six to ten-fld., with the peduncle nearly a foot long, very slender, decurved and pendulous; sheaths closely appressed, streaked with brown. *Flowers* remote, long-pedicelled ; bracts green, tubular with obliquely truncate rather dilated mouths; pedicels three-fourths to an inch long, filform. *Ovary* one-fourth to half an inch long, green, subterete. *Dorsal sepal* two and a half inches long, ovate-lanceolate, narrowed into a filiform tail four or five times as long as the convex blade, white with three red-purple streaks ; lateral sepals connate into a red-purple lanceolate blade which is narrowed into a slender tail, like that of the dorsal. *Petals* with a yellowish blade, much smaller than the sepals, but narrowed into as long spreading recurved tails. *Lip* yellow; side lobes sickle-shaped, decurved, half as long as the strict linear fleshy subacute mid-lobe. *Column* very short, stout, acute. *Anther* mitriform.—*J. D. H.*

Fig. 1, Lip; 2, side and 3 front view of column; 4, anther; 5, pollinia—*All enlarged.*

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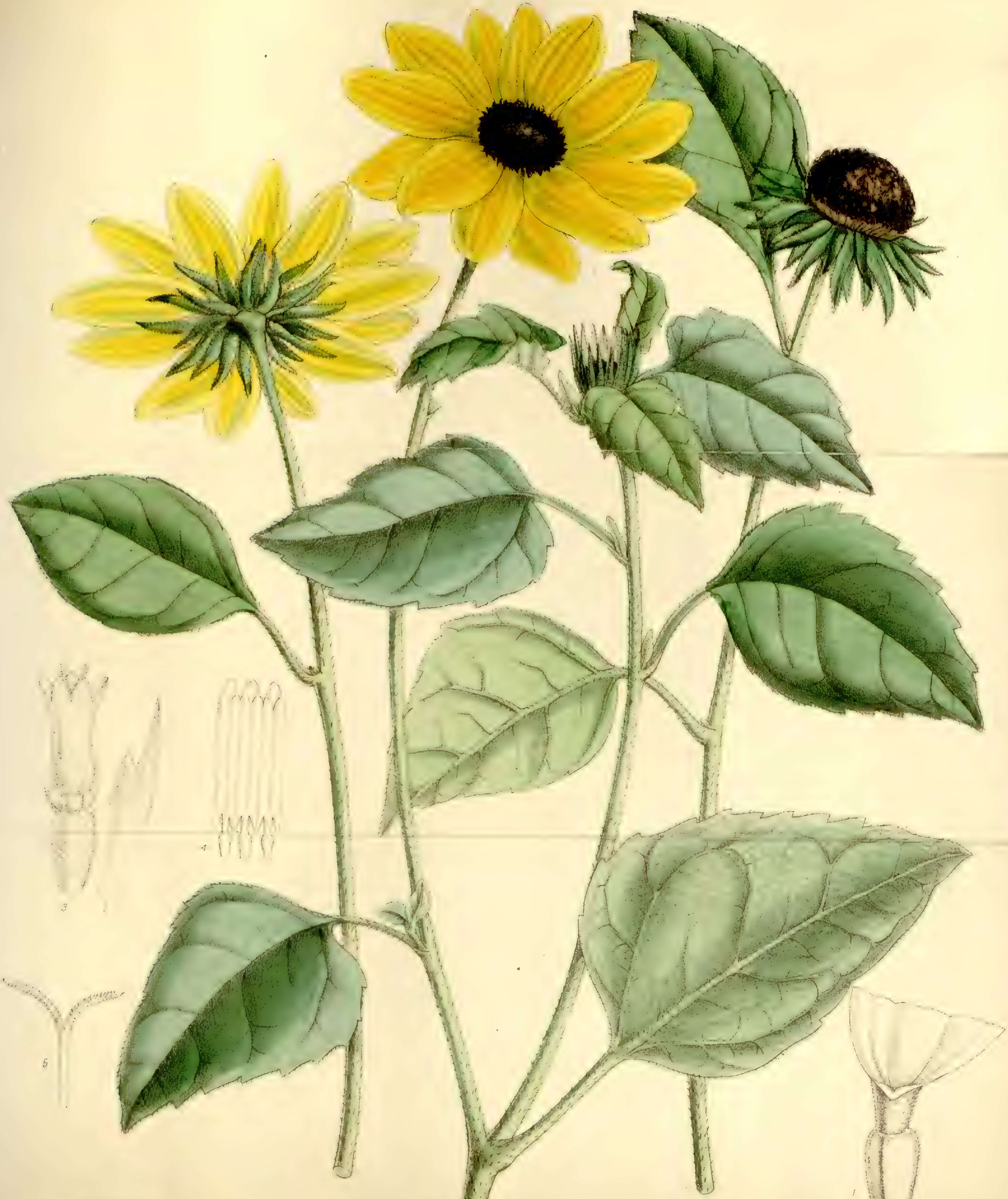

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TAB. 7432.

HELIANTHUS DEBILIS.

Native of the Southern United States.

Nat. Ord. COMPOSITÆ.—Tribe HELIANTHOIDEÆ.

Genus HELIANTHUS, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 376.)

HELIANTHUS *debilis*; annuus, hispidulus, caule e basi ramoso, ramis gracilibus, foliis longe petiolatis ovatis deltoideisve subacutis grosse inæqualiter crenato-dentatis denticulatisque e basi cuneato 3-nerviis, floribus amplis gracile pedunculatis, involucri bracteis patentibus inæqualibus herbaceis lanceolatis acuminatis scabridis, receptaculi planiusculi bracteolis truncatis v. inæqualiter 2–3-fidis-dentatisve, corollis radii sub 3-seriatis elliptico-oblongis 3–5-nervis aureis, disci corollis cylindraceis rubro-brunneis, achæniis obovato-oblongis hispidulis, pappi setis brevibus inæqualibus coriaceis.

H. debilis, *Nutt. in Trans. Am. Phil. Soc. N.S.* vol. viii. (1841) p. 367. *Torr. & Gray ,Fl. N. Am.* vol. ii. p. 320. *Chapm. Fl. S. Un. St.* p. 229. *A. Gray, Synopt. Fl. N. Am., Gamopet.* part i. p. 273.

H. præcox, *Engelm. & Gray in Bost. Journ. Nat. Hist.* vol. v. (1847) 221, and *Pl. Lindh.* vol. i. p. 13.

H. debilis, *var.* cucumerifolius, *A. Gray l. c. Gard. Chron.* (1895) vol. i. p. 167, fig. 24.

H. cucumerifolius, *Torr. & Gr. Fl. N. Am.* vol. ii. 319.

Helianthus debilis belongs to a small section of the genus in which the root is annual, chiefly natives of the Southern States of N. America, and which includes six species, the common *H. annuus*, Linn., being one of them. A. Gray says of the whole group that the species are "difficult of determination, and apparently confluent." He includes under it *H. præcox*, as a variety with a more hispid stem, but Chapman retains this, describing it as erect, *H. debilis* being more or less decumbent, and having 15–20 ray-flowers, whereas he attributes only 10–14 to *H. debilis*. Chapman further describes the flowers of *debilis* as small, but Gray says of them that they are half an inch or more in diameter.

H. cucumerifolius, Torr & Gray, is described by Gray as another form of *debilis*, distinguished by its greater

size, usually purple-mottled stem, and more numerous broader rays, 15–20 in number, an inch and more long, and its irregularly serrate leaves with salient teeth. A careful comparison of a suite of authentically named specimens of *debilis*, *præcox*, and *cucumerifolius* shows that there are no good grounds for distinguishing them as varieties, they differ considerably, but only in the size of the leaves and flowers, those of the specimen here figured are much larger than in any of the native ones, and the nearest approach to it is labelled *H. debilis* by Gray. In the Gardener's Chronicle *H. debilis* var. *cucumerifolius* is described as having stems blotched with purple (as described by Gray), and as suited to a perennial border; but the stems of the Kew plant are speckled with white, and the plant is an annual.

H. debilis was raised at Kew from seeds purchased from a nurseryman. It is a native of the sandy sea shores of Florida, Louisiana, and E. Texas. At Kew the plants flowered in an open border in September, 1894.

Descr.—Annual; whole plant hispidulous. *Stem* branching from below; branches two feet long, slender, green, speckled with white. *Leaves*, lower opposite, upper alternate, three to four inches long, ovate or deltoid, subacute, more or less irregularly crenate or toothed, or acutely sublobulate and denticulate, thin, rough on both surfaces, dark green, 3-nerved from the cuneate or truncate base; petiole one to three inches long, slender. *Flower-heads* two to three inches in diameter, on slender peduncles. *Involucre* of many spreading unequal herbaceous, lanceolate acuminate scabrid bracts. *Receptacle* nearly flat, with narrow unequally toothed or rarely entire chaffy bracteoles. *Ray-flowers* twelve to twenty, bright golden yellow; limb oblong, obtuse, three to five-nerved. *Disk-flowers* maroon brown; corolla cylindric; lobes obtuse, suberect. *Achene* obovate-oblong, pubescent; pappus bristles about two, very unequal, short, rigid.—*J. D. H.*

Fig. 1, Ovary and base of corolla of ray-fl.; 2, bracteole of receptacle; 3, fl. of the disk; 4, stamens; 5, style-arms:—*All enlarged.*

7433

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TAB. 7433.

RUMEX HYMENOSEPALUS.

Native of New Mexico and Arizona.

Nat. Ord. POLYGONACEÆ.—Tribe RUMICEÆ.

Genus RUMEX, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 200.)

RUMEX *hymenosepalus*; glaberrima radice tuberosa, caulibus erectis elatis robustis, foliis oblongis ovato- v. lanceolato-oblongis acuminatis in petiolum crassum angustatis undulatis pallide viribidus, reticulatim venosis, coste crassa, nervis primariis utrinque 6–10, stipulis magnis hyalinis caducis, paniculis axillaribus et terminalibus densifloris pedicellis floribus hermaphrodis brevioribus basi versus articulatis, sepalis interioribus quam exterioribus multo majoribus amplis orbicularibus venosis, fructiferis basi cordatis intus e callosis integerrimis, akeniis ⅛ poll. longis.

R. hymenosepalus, *Torrey Bot. Mexic. Bound.* p. 177. *S. Wats. Bot. Calif.* vol. ii. p. 8 and 479. *Am. Journ. Pharm.* 1876, p. 49; Aug. 1889, and April, 1893. *Kew Bulletin*, 1890, p. 63, and 1894 p. 167, *Journ. & Trans. Pharmac. Soc.* 1889, p. 187, and July, 1893, p. 42. *Nugent in Foreign Off. Report*, 1894, n. 1879.

S. Saxei, *Kellogg in Pacif. Rural Press*, June, 1879.

Considerable interest attaches to the plant here figured, on account of its tanning properties, which have led to its cultivation in the United States' experimental station attached to the Agricultural College at Las Cruces, "where the evolution of the plant from the wild to the cultivated state is being closely watched and recorded." A very full account of its history, chemical, and other properties, together with the steps being taken in America for its profitable culture, will be found in the *Kew Bulletin* cited above. Its native name is Canaigre (or Ganagra), and the tanning material is contained in the roots in large quantities. These roots are described as globular or fusiform, two to six inches long, and three inches in diameter, of a dark reddish colour, and growing in clusters like sweet potatoes. Its properties are said to have been known to the Mexicans for more than two centuries.

R. hymenosepalus is a native of the driest regions of Northern Mexico and the South Western States of N.

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America, from South California to Arizona, New Mexico, and from Western Texas and South Utah. It was first known botanically from being collected during the United States' Survey of the Mexican Boundary, by Dr. Parry, Botanist to that expedition, the results of which were published by Dr. Torrey. The stem and leaves have a pleasant acidity, and are, according to Watson, used in California and Utah, under the name of Wild Pie plant.

The specimen figured was raised from seeds sent to the Royal Gardens, Kew, in 1890 by Dr. F. H. Goodwin, of Tucson, Arizona, which flowered in the herbaceous ground in June, 1894.

Descr.—Quite glabrous. *Root* of fusiform tubers. *Stem* twelve to twenty-four inches high, stout, terete, leafy, and as well as the whole plant perfectly glabrous, pale green, suffused with brown. *Leaves* six to ten inches long by two to three broad, oblong- or ovate-lanceolate, acuminate, narrowed into a stout petiole, pale grey-green on both surfaces, rather mottled beneath, reticulately nerved; midrib stout; nerves six to ten pairs. *Panicles* axillary and terminal, subsessile, three to five inches long. *Flowers* nearly half an inch in diameter, crowded, bisexual, green; pedicels a sixth to a third of an inch long, jointed at the base, red brown. *Outer sepals* minute, inner very large, orbicular, cordate at the base; fruiting two-thirds of an inch in diameter, pale brown, quite entire, disk without a callus. *Anthers* linear. *Ovary* very broadly ovoid. *Achene* about one-sixth of an inch long.—*J. D. H.*

Fig. 1, Flower; 2 and 3, stamens; 4, ovary:—*all enlarged*; 5, fruiting panicle of the *natural size*.

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M.S. del, J.N.Fitch lith.

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TAB. 7434.

CLEYERA FORTUNEI.

Native of Japan?

Nat. Ord. TERNSTRŒMIACEÆ.—Tribe TERNSTRŒMIEÆ.

Genus CLEYERA, *DC.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 183.)

CLEYERA *Fortunei*; foliis 4–6-pollicaribus elliptico-v. lineari-oblongis obtusiusculis utrinque sensim angustatis lucidis, costa nervisque prominulis, pedicellis confertis ½-pollicaribus, floribus ⅜ poll. latis, petalis primulinis sepalis obtusis ciliolatis triplo longioribus, staminibus 15–20 filamentis inæquilongis, antheris oblongis pilosis.

C. Fortunei, *Hook. f. in Gard. Chron.* 1895, vol. i. p. 10.

C. japonica, foliis variegatis, *Hort.*

Euryæ Sp. *Gard. Chron.* 1861, p. 735.

E. latifolia variegata, *Verschaff. in Expos. Gand* 1882, *ex Bullet. Féd. Soc. Hort. de Belgique* (1886), p. 394.

The first account of this handsome shrub is contained in the *Gardener's Chronicle* for 1861, where it is alluded to as a new Japanese plant, introduced by Fortune, and exhibited by Mr. Standish at a meeting of the Royal Horticultural Society, as a broad-leaved *Eurya*. It has been in cultivation ever since, but never having been observed in a flowering state till comparatively recently, its genus has remained doubtful. That it is a *Cleyera* is evident; but the Asiatic species of that genus are so very closely allied, that the establishing a new one, on what is no doubt a garden variety, and probably due to Japanese or Chinese skill, is a hazardous proceeding. I say Japanese or Chinese, for Fortune sent variegated-leaved shrubs from both countries, and the absence of any specimen of *C. Fortunei* in the rich Herbarium of Japanese plants at Kew is suspicious.

There are three described *Cleyeras*; two Indian (perhaps varieties of one) *C. ochnacea*, DC., and *C. grandiflora*, Hook. f. & Thoms.; the third is *C. japonica*,* Sieber & Zucc., a native of Japan, China, and Formosa, which has by some botanists been regarded as a form of *C. ochnacea*. The chief difference between the Japanese and the Indian species is the well-marked venation of the leaves of the latter; the nerves of *C. japonica* being, in the dried leaf, very obscure. Both vary in the size of the flowers and leaves, and in the form of the latter. The large flowered form would appear, from the specimen in the Kew Herbarium from all three localities, to be the more common of the two.

---

* Which must not be confounded with *Cleyera japonica*, Thunb., a species of *Ternstrœmia*.

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C. Fortunei agrees with *C. ochnacea* and *grandiflora* in the nervation of the leaves, and with the last in the size of the flowers; but differs from both in the longer, narrower leaves, and their thinner texture—characters that may be due to cultivation; and if the Himalayan species were to prove to be also Chinese (as are so many Himalayan shrubs), it would strengthen the suggestion I have thrown out, that *C. Fortunei* is of Chinese, and not Japanese origin.

The above notes appeared in the *Gardener's Chronicle* in January last, and I have nothing to add to them. The species must still be regarded as an unstable one, waiting further evidence. The specimen here figured was kindly forwarded by T. Acton, Esq., J.P., of Kilmacurragh, Rathdrum, County Wicklow, in September, 1894.

Descr.—A glabrous, erect, much-branched shrub. *Branches* stout, bark brown. *Leaves* four to six inches long, elliptic- or linear-lanceolate, subobtuse, narrowed at both ends, bright green, variegated with golden-yellow and scarlet towards the margins; midrib and nerves slender. *Flowers* one half to two-thirds of an inch in diameter, solitary or fascicled in the axils of the leaves, or on nodes of the branches; pedicels half an inch long, stout, green and red. *Calyx* small, 5-lobed; lobes shortly oblong, ciliolate, red brown. *Petals* a fourth to a third of an inch long, oblong, obtuse, pale yellow, margins incurved. *Stamens* fifteen to twenty, of unequal length; anthers adnate to the filaments, oblong, hairy; connective shortly produced. *Ovary* shortly, stoutly stipitate, broadly ovoid, 2-celled; style erect, tip 2-fid; ovules many in each cell.—*J. D. H.*

Fig. 1, Flower with the petals removed; 2, petal and stamens; 3, anther; 4 ovary; 5, vertical, and 6, transverse section of do.:—*All enlarged.*

M.S.del. J.N.Fitch lith.

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TAB. 7435.

ATRAPHAXIS MUSCHKETOWI.

Native of Central Asia.

Nat. Ord. POLYGONACEÆ.—Tribe EUPOLYGONEÆ.

Genus ATRAPHAXIS, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 96.)

ATRAPHAXIS (Tragopyrum) *Muschketowi*; frutex glaberrimus, ramis flexuosis, foliis 1–1½-pollicaribus oblongis obtusis crenulatis basi cuneatis v. rotundatis pallide viridibus, nervis gracilibus arcuatis, stipulis ad medium connatis elongato-subulatis, racemis terminalibus breviter pedunculatis oblongis, floribus ⅓ poll. diam. albis ovario antherisque rubellis, pedicellis gracilibus perianthio longioribus basin versus articulatis, perianthii segmentis exterioribus 2 ovatis obtusis deflexis quam 3 exterioribus erectis dimidio brevioribus, staminibus 8–9, stylis brevibus, achænio triquetro.

A. Muschketowi, *Krassn. Descr. Pl. Nov. v. Minus cogn.* (1886), 20; *Fl. Thian Schan.* p. 340.

Tragopyrum lanceolatum, *var.* latifolium, *Regel in Gartenfl.* t. 1344 (1894), fig. 1–3.

I have retained for this plant the name under which it was published by Krassnov, though expecting that when the species of *Atraphaxis* shall have been critically studied, it will prove to be a form of a previously published one. It has been referred by Regel to *A. lanceolata*, Meissn. (in *DC. Prodr.* xiv. pt. i. p. 78); (Tragopyrum lanceolatum, *Bieb.*), which includes the Siberian and Dahurian *Polygonum fruticosum*, Linn. (*Fl. Upsal.* p. 95; *Sp. Pl.* p. 359). Of this (the Linnæan) plant I have examined the specimen in the Linnæan Herbarium. It is a very small and narrow-leaved species, with small flowers, quite unlike *Trag. lanceolatum*, Bieb., and very different from *A. Muschketowi*. The figure of *P. fruticosum*, given in the *Botanical Register* (t. 254), which was taken from a specimen that flowered in Fulham Nurseries in 1818 resembles the Linnæan specimen in foliage, but differs in the flowers being rather larger, and in a leafy raceme. *Atraphaxis micrantha*, Jaub. & Sp. (*Ill. Pl. Or.* vol. ii. p. 15), doubtfully referred to *A. lanceolata* by Meissner, is probably *P. fruticosum* of Linnæus Herb. It must further be borne in mind that Linnæus has cited under *P. fruticosum* a Levant plant of Tournefort

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(*A. Tournefortii*, Jaub. & Sp.), so that his species is, like Meissner's, a composite one. Another allied plant is *A. buxifolia*, Jaub. & Sp. (*Polygonum crispulum*, Tab. 1065) which has the racemes of *A. Muschketowi*, but the pedicels are jointed about the middle, and the perianth segments crisped.

As with so many Central Asiatic shrubs, the leaves of the species of *Atraphaxis* vary extremely, and together with the habit of the plant, depend on the aridity or moisture of the locality they grow in. *A. Muschketowi* is a native of the foot of the Alatau Mts. a member of the great Thian Schan range of Central Asia, where it was found by Krassnov near the Amatinka river in lat. 43° 0′ N. and long. 77° 47′ E. The specimen figured is from a plant sent from the Imperial gardens of St. Petersburg to the Royal Gardens, Kew, where it flowered in May and June in the Arboretum.

Descr.—A dwarf, leafy, spreading, deciduous shrub, three feet in diameter; bark of branches brown. *Leaves* one to one and a half inches long, very shortly petioled, oblong, acute, crenulate, pale green, nerves arching; stipules half an inch long, erect, subulate, connate to about the middle. *Racemes* terminal, chiefly in whorls, lateral branches one to one and a half inch long, very shortly peduncled, oblong. *Flowers* about a third of an inch broad, white, with red anthers and ovary; peduncle very slender, longer than the perianth, jointed above the base. *Perianth* 5-partite; two outer perianth-segments oblong, reflexed, about half as long as the orbicular, erect, inner. *Stamens* 8. *Ovary* trigonous; style very short.—*J. D. H.*

Fig. 1, Stipules; 2, fls. with pedicel; 3, perianth, stamen and ovary; 4 and 5, anthers; 6, ovary:—*All enlarged.*

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M. S. del, J. N. Fitch lith.

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TAB. 7436.

RICHARDIA REHMANNI.

Native of Natal.

Nat. Ord. AROIDEÆ.—Tribe PHILODENDREÆ.

Genus RICHARDIA, *Kunth*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 982.)

RICHARDIA *Rehmanni*; foliis anguste elliptico-lanceolatis acuminatis in petiolum angustatis plagis elongatis pallidis notatis, nervis omnibus tenuissimis, spathæ tubo cylindraceo extus pallide vivescente intus toto albo, limbo lanceolato albo plus minusve roseo tincto acuminato supra medium revoluto, oris margine recurvo, spadice stipitato.

R. Rehmanni, *N.E. Br. in Hort. Bot. Cantab. Krelage in Gard. Chron.* 1893, vol. ii. p. 564, fig. 94 (*sphalm. Lehmanni*), *et in Gartenfl.* 1894, p. 12, f. 7. *W. Wats. in Gard. Chron.* 1894, vol. ii. p. 364.

Zantedeschia Rehmanni, *Engl. Bot. Jahrb.* vol. iv. (1883), p. 63.

R. Rehmanniana, *nov. in textu, ante sub tab.* 7397 (*sphalm.*).

De Waals Richardia, *Masters in Gard Chron.* 1893, *l. c.*

Under Tab. 7397 of this work I have alluded to the plant here figured under the name of *Richardia Rehmanniana*, for which I failed at the time to find any authority. Its now having flowered at Kew gives me the opportunity of clearing up its history, which is somewhat involved. In 1888 Mr. Lynch sent a specimen of it from the Botanical Gardens of Cambridge to the Kew Herbarium, where it was examined and recognized by Mr. Brown to be the *Zantedeschia Rehmanni* of Engler, and a true *Richardia*. This information was communicated to Mr. Lynch by Mr. Brown, who may hence be regarded as the originator of the name the plant now bears.

R. Rehmanni was discovered on grassy, stony hills near Standerton, Natal, by Mr. Rehmann, and, as stated above, was described as a *Zantedeschia*. Its introducer into England was Mr. R. W. Adlam, who sent tubers to Mr. Lynch in July, 1888, as a rose-fld. *Richardia*. These tubers, on first flowering at the Cambridge Botanical Gardens, had white spathes, without any tinge of rose, and on informing Mr. Adlam of this, that gentleman answered from Natal:—"The *Richardia* with pink flowers has behaved just the same here, i.e. flowering

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nearly white, with hardly a trace of pink. Yet when I collected it the spathes were nearly of the colour of a Homére rose. It grew in crevices of granite rock, not in swamps."

For tubers of *R. Rehmanni* the Royal Gardens are indebted to Mr. Medley Wood, Curator of the Durban Gardens. These were received in 1893, and the plants flowered in the Cape House in October, 1894. The species differs from any hitherto described in foliage, colour, and the stipitate spadix.

Descr.—*Leaves* ten to twelve inches long, narrowly elliptic, lanceolate, acuminate, narrowed into and much longer than the stout petiole, undulate and recurved, bright green on both surfaces, with scattered linear blotches of greenish white, parallel to the very numerous close-set slender nerves; midrib stout, pale green. *Peduncles* shorter than the leaves, green. *Spathe* about five inches long, erect; tube two inches long by about one in diameter, cylindric, pale green, white to the base within; limb lanceolate, undulate, acuminate, white, suffused with pink on the margins, upper third recurved, margins of mouth recurved. *Spadix* two inches long, its stipes rather more than half an inch, and as long as the female portion. *Ovary* glabrous, stigma sessile—*J. D. H.*

Fig. 1, Base of spathe and spadix; 2, anther; 3, ovary; 4, vertical section of do.; 5, ovule:—*All enlarged.*

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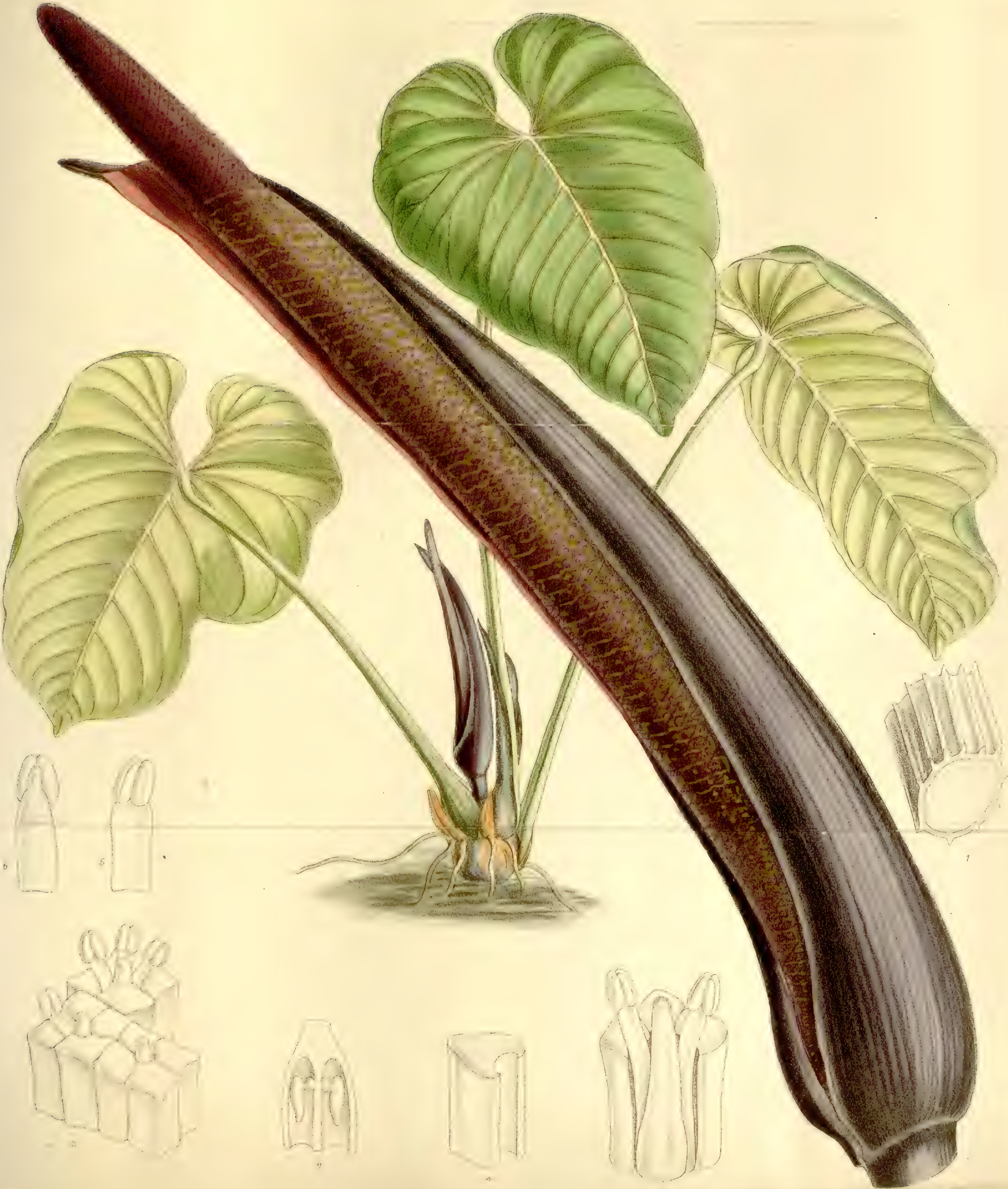

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TAB. 7437.

ANTHURIUM GUSTAVI.

Native of New Grenada.

Nat. Ord. AROIDEÆ.—Tribe ORONTIEÆ.

Genus ANTHURIUM, *Schott.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 998.)

ANTHURIUM (Cardiophyllum) *Gustavi*; acaule, foliis longe petiolatis cordato-ovatis obtusis, margine undulatis, lobis rotundatis, sinu oblongo, nervis primariis utrinque 10–15 inferioribus retrorsis, petiolo lamina longiore teretiusculo alte costato, geniculo mediocri, spatha cylindracea lente curva pedali breviter crasse pedunculata basin versus sensim tumescente apice attenuata obtusa crasse coriacea luride purpurea lævissima marginibus incurvis, spadice spatha paulo longiore sessili cylindracea obtusa purpurea, sepalis linearibus truncatis subtrigonis intus profunde canaliculatis, filamentis linearibus compressis, antheris late oblongis, ovario in stylum crassum elongatum attenuato.

A. Gustavi, *Regel in Gartenfl.* v. 1878 (1878), p. 324, *nomen, et* (1882), p. 67, t. 1076. *Engler, Monogr. Arac. in DC. Monogr. Phanerogam,* vol. ii. p. 640, *nomen.*

Anthurium Gustavi was discovered by G. Wallis near Buonaventura, a seaport in the province of Cauca, in New Grenada, and was introduced by him into the Imperial Botanical Gardens of St. Petersburg in 1878. There it flowered, and was figured by Regel in the *Gartenflora* in 1882, but the spathe, according to the description given, was only a little over five inches (13 cm.) long; and the petiole is described as subterate. The leaves, however, had attained the same dimensions as those of the Kew specimen. The plant here figured was obtained from Messrs. F. Sander & Co., of St. Albans. It is growing in a large pan over the tank in the Victoria House of the Royal Gardens, where the leaves attain a diameter of three feet, and the petioles a length of three and a half feet. The species had previously been sent (in 1887) to the Royal Gardens from Herrenhausen, Hanover, by Dr. Wendland, but had not flowered.

Descr.—*Stem* very short, stout, tuberous; basal sheaths few, small, red-brown, not enveloping the base of the petioles and peduncle. *Leaves* one and a half to nearly four feet long, rather longer than their petioles, broadly ovate-cordate, obtuse, thinly coriaceous, bright green above, paler beneath; basal-lobes rounded; sinus oblong; nerves ten to fifteen pairs, pale green or reddish, of which four to six pairs are recurved, and occupy the lobes, all uniting in a faint intramarginal nerve; petiole subterete, with about twelve sharply keeled parallel ridges, green, purple at the base; knee at the apex about an inch long, green. *Spathe* cylindric, a foot long, by one and a half inch diameter at the rather tumid rounded base, gently curved, elongate linear-lanceolate, narrowed at the rather thickened obtuse tip, margins incurved; peduncle hardly an inch long, very stout, and like the spathe, dark violet-purple. *Spadix* rather longer than the spathe, an inch in diameter, cylindric, gradually narrowed from the sessile base to the rounded tip, red-purple. *Sepals* linear, truncate, deeply grooved in front. *Filaments* linear, flat; anthers shortly oblong. *Ovary* narrowed into a very stout style, stigma simple.—*J. D. H.*

Fig. 1, Section of petiole; 2, flowers; 3, flower with one sepal removed; 4, a sepal; 5 and 6, stamens; 7, section of ovary:—*All enlarged.*

M S. del, J.N.Fitch lith.

Vincent Brooks, Day & Son Imp.

L. Reeve & C^o. London.

TAB. 7438.

MORMODES ROLFEANUM.

Native of Peru.

Nat. Ord. ORCHIDEÆ.—Tribe VANDEÆ.

Genus MORMODES, *Lindl.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 552.)

MORMODES *Rolfeanum*; pseudobulbis fusiformibus, foliis lanceolatis acuminatis nerviis, pedunculo robusto suberecto paucifloro, bracteis viridibus, floribus erectis, sepalis petalisque aureis sanguineo striatis et conspersis, sepalis ovatis obtuse acuminatis deflexis, petalis orbiculari-obovatis acutis erectis incurvis lateralibus reflexis, labello sepalis æquilongo erecto forte incurvo e basi angusto oblongo apice cuspidato v. rotundato, intus rubro-castaneo, columna alba roseo pallide irrorata.

M. Rolfeanum, *Linden in Lindenia*, vol. vii. p. 5, t. 289. *Masters in Gard. Chron.* 1892, vol. i. p. 203, fig. 30.

The genus *Mormodes* is rapidly increasing in number of species. At the date of the publication of the *Orchideæ* in the "Genera Plantarum" by Mr. Bentham (1883) fourteen species were known. Twenty-four are enumerated in Part III. of the "Kew Index," published in 1894, and Mr. Rolfe informs me that not a few have since been discovered. It affords me great pleasure to be able to figure so fine a plant, dedicated, as it is, to a late colleague at Kew, who has ever most generously given me the aid of his unequalled knowledge of the difficult Order to which *Mormodes* belongs, whether in the preparation of the matter for the "Botanical Magazine" or of the "Flora of British India."

M. Rolfeanum is not very closely allied to any other. Of the eight already figured in this Magazine, it comes nearest in some characters to *M. Greenii* (Tab. 5802), especially in the form of the sepals, petals and lip, but that is a much larger plant, with a long pendulous many-fld. raceme, the sides of the lip are incurved, and its tip is bifid and erosely ciliate. The colouration, too, of the whole flower is entirely different.

The plant was obtained from Mr. Linden's establishment,

OCTOBER 1ST, 1895.

"L'Horticulture International" of Brussels, in 1893, and flowered in the Tropical Orchid House of the Royal Gardens in January, 1895.

Descr.—*Pseudobulbs* three to four inches long, fusiform, terete, straight, pale green. *Leaves* eight to ten inches long, by one and a half to two inches broad, lanceolate, acuminate, light green above; paler speckled with dark green, and strongly nerved beneath; petiole stout, three to five inches long, green and speckled. *Scape* six inches high, stout, erect, pale green, with two or three short obtuse, green, appressed sheaths. *Raceme* terminal, few-fld.; bracts about a third of an inch long, ovate-oblong, appressed, green. *Flowers* erect, four inches long from the tips of the deflexed sepals to that of the erect lip; sepals and petals and back of the lip golden-yellow, streaked and speckled with blood-red. *Sepals* broadly ovate, obtusely acuminate, deflexed. *Petals* erect, almost orbicular, obtuse or apiculate, rather broader than the sepals. *Lip* as long as the sepals, erect and strongly arched inward, obovate-oblong (when spread out) from a subunguiculate base, dark red-chestnut within, tip rounded or apiculate, sides revolute. *Column* white, clouded with red.—*J. D. H.*

Fig. 1, Column; 2, anther-cap; 3, pollinia:—*All enlarged.*

7439

M.S. del. J.N.Fitch lith.

Vincent Brooks, Day & Son Imp.

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TAB. 7439.

POLYGALA GALPINI.

Native of the Swaziland.

Nat. Ord. POLYGALEÆ.

Genus POLYGALA, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 136.)

POLYGALA *Galpini*; fruticulus gracillimus, ramulis flexuosis petiolis foliis subtus racemique rachi hispidulis, foliis petiolatis ovatis acuminatis ciliolatis basi rotundatis v. subcordatis, racemis axillaribus erectis multifloris, floribus majusculis pallide roseo-lilacinis, sepalis deciduis, 3 exterioribus late ovatis obtusis cymbiformibus, dorsali lateralibus duplo fere longiore, alis obovatis capsula latioribus, corollæ lobis lateralibus oblongis obtusis, carinæ lobis truncatis plicatis, capsula (immatura) fere orbiculari emarginata anguste alata, stylo apice incurvo anguste buccæformi truncato, stigmate punctiforme.

P. Galpini, *Hook. f.*

The genus *Polygala* is very numerous in South Africa, as indeed it is in many other countries; and the species have proved to be difficult of limitation, and more so of classification. In respect of the first of these obstacles, *P. Galpini* is happily an exception, for there is none to which it comes near in habit and foliage; and as to the second it takes its place in the group designated "Hispidæ" by Harvey in the "Flora Capensis," characterized as consisting of small, half-herbaceous, or suffruticose plant, with ovate or lanceolate (or sublinear) pubescent leaves, terminal or lateral erect racemes, and wings of calyx broader than the capsule.

P. Galpini was discovered by the collector, W. T. Gerrard, in Natal or Zululand nearly half a century ago. Mr. Galpin describes it as a shrub three to five ft. high, growing amongst shrubs or banks of streamlets and margins of woods at Havelock Concession, Swaziland, and Devil's Bridge, in cool places at elevation of 4–5000 ft. In cultivation its habit is more erect than in the wild state, and it forms a very graceful greenhouse ornament. The plant figured was raised from seeds sent in 1889 by Mr. Galpin,

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of Barberton in the Transvaal, and flowered in the Temperate House of the Royal Gardens, Kew, in September, 1894, when about a foot high.

Descr.—A very slender straggling shrub, three to five ft. high, with flexuous branches, branchlets, petioles, nerves of leaf beneath and inflorescence sparsely hispidulous. *Leaves* two to three inches long, shortly petioled, ovate, acuminate, bright green above, paler beneath, margins ciliolate; nerves four or five pairs, sunk above, reddish beneath; petiole one-third to half an inch long, reddish. *Racemes* axillary, erect, three to four inches long, rachis hispidulous; pedicels one-sixth to one-fourth of an inch long, of lower flowers decurved; bracts as long as the pedicels or longer, ovate-lanceolate, green, caducous. *Flowers* nearly an inch across the expanded wings, pale rose-lilac. *Sepals* five, three outer about half the length of the wings, broadly ovate, cymbiform, obtuse, ciliolate, the dorsal much the largest; wings obovate. *Corolla* shorter than the wings; two lateral lobes oblong, obtuse, rather shorter than the keel, which is two-lobed, the lobes truncate and plicate. Upper third of *style* upcurved, trumpet-shaped, tip truncate, with a punctiform stigma in front. *Young capsule* nearly orbicular, very narrowly winged.—*J. D. H.*

Fig. 1, Flower; 2, corolla with one petal removed; 3, top of filament and anther; 4, ovary and disk:—*All enlarged.*

7440.

M. S. del, J. N. Fitch lith.

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TAB. 7440.

TULIPA VIOLACEA.

Native of Persia.

Nat. Ord. LILIACEÆ.—Tribe TULIPEÆ.

Genus TULIPA, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 818.)

TULIPA *violacea*; bulbo ovoideo, tunicis exterioribus chartaceis brunneis apice tantum pilosis, caule glabro unifloro, foliis 3–5 crebris ascendentibus glabris inferioribus lanceolatis superioribus linearibus, pedunculo glabro gracili elongato, perianthio campanulato basi cuneato sæpissime splendide rubro raro albo-rubello, segmentis conformibus oblongis subacutis basi maculâ nigra albo-marginata præditis, staminibus nigris, filamentis supra basin pilosis, ovario triquetro-cylindrico stigmatibus parvis.

T. violacea, *Boiss. et Buhse Aufzähl Transcauc.* p. 211. *Baker in Journ. Linn. Soc.* vol. xiv. p. 290. *Boiss. Fl. Orient.* vol. v. p. 199.

This beautiful tulip is one of the few species that have filaments hairy near the base, and bright red flowers. It is allied to *T. Haageri* (*Bot. Mag.* tab. 6242), and *T. pulchella* (*Bot. Mag.* tab. 6304). It was first described from specimens gathered by Buhse in 1848 in Northern Persia at an elevation of 6000 to 8000 feet. Boissier, writing in 1881, says that he has seen it cultivated from the neighbourhood of Teheran. In 1882 it was found by Pichler on Mount Elwend, in the neighbourhood of the snow; and in 1890 it was collected by Dr. Strauss in the district of Sultanabad in the Raswand Mountains, whence it was sent to Leichtlin. Our drawing was made from plants grown from bulbs which the latter gentleman presented to the Royal Gardens, Kew, and which flowered at the end of March, 1895. The flower in these was bright mauve-red, not violet, so that the name is misleading, but our dried specimens show that it varies to red, with a slight flush of red outside.

Descr.—*Bulb* ovoid, an inch in diameter; outer tunics dark brown, subcoriaceous, hairy only at the tip. *Stems* one-flowered, under a foot long in the wild plant. *Leaves* three to five, crowded, ascending, glabrous, slightly glaucous, the lowest lanceolate, an inch broad, the others linear. *Peduncle* long, erect, glabrous. *Perianth* campanulate, with a contracted base, fragrant, an inch and a half or two inches long, typically bright mauve-red, varying to white, with a slight flush of red outside; segments uniform, oblong, subacute, with a large blotch at the base of black bordered with white. *Stamens* half an inch long, black; filaments hairy above the base. *Ovary* triquetro-cylindrical, shorter than the stamens; stigmas small, sessile.—*J. G. Baker.*

Fig. 1, Front view of stamen; 2, back view of stamen; 3, pistil:—*All enlarged.*

M S del, J.N Fitch lith.

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TAB. 7441.

STERNBERGIA FISCHERIANA.

Native of the Caucasus, Persia and Asia Minor.

Nat. Ord. AMARYLLIDEÆ.—Tribe AMARYLLEÆ.

Genus STERNBERGIA, *Waldst. & Kit.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii, p. 721.)

STERNBERGIA (*Oporanthus*) *Fischeriana*; bulbo ovoideo, tunicis membranaceis brunneis supra collum productis, foliis 8–9 vernalibus synanthiis linearibus obtusis glauco-viridibus integris, pedunculis brevibus unifloris, spathis magnis membranaceis sæpissime bifidis, ovario subsessili vel breviter pedicellato, perianthii citrini tubo brevi infundibulari, segmentis oblongo-spathulatis tubo multo longioribus, staminibus inæqualibus perianthio manifeste brevioribus, antheris oblongis parvis luteis, stylo elongato, stigmate capitato.

Sternbergia Fischeriana, *Roem. Amaryll.* p. 46. *Kunth Enum. Pl.* vol. v. p. 702. *Boiss. Fl. Orient.* vol. v. p. 147. *Baker Handb. Amaryll.* p. 29.

Oporanthus Fischerianus, *Herb. Amaryll.* p. 412, tab. 47, fig. 3.

Amaryllis lutea, *Bieb. Fl. Taur. Cauc.* vol. ii. p. 255, *non Linn.*

This beautiful *Sternbergia* closely resembles the finest forms of the well-known *Sternbergia lutea* (*Amaryllis lutea*, Linn., *Bot. Mag.* tab. 290), but it flowers in spring instead of autumn. *Sternbergia* was separated from *Amaryllis* by Waldstein and Kitaibel, who named it in honour of Count Sternberg, the monographer of the Saxifrages. Like *S. lutea* it is quite hardy in England, and it is therefore likely to become a popular garden plant. It was first described and figured by Herbert from the Caucasus, where *S. lutea* has not been found. Bulbs of it, collected in Persia, were received at the Royal Gardens, Kew, from Messrs. Damman in 1894; and others from the neighbourhood of Smyrna from Mr. E. Whittall in the same year. Our drawing was made from plants that flowered in a sunny, open border in the Royal Gardens, Kew, in March, 1895, the bulbs of which were presented by the latter gentleman.

Descr.—*Bulb* ovoid, one and a half or two inches in diameter; outer tunics membranous, brown, produced above its neck. *Leaves* 8–9 to a bulb, vernal, contem-

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porary with the flowers, linear, obtuse, glaucous green, half a foot long at the flowering season, lengthening out afterwards. *Peduncles* short, one-flowered, two or three to a strong bulb. *Spathes* membranous, white, usually bifid. *Perianth* bright yellow; tube funnel-shaped, under half an inch long; segments of the limb oblong-spathulate, an inch and a half long. *Stamens* unequal, shorter than the perianth; anthers small, oblong, versatile, yellow. *Ovary* subsessile or shortly stalked; style long, simple; stigma capitate.—*J. G. Baker.*

Fig. 1, Front view of stamen; 2, back view of stamen; 3, style and stigma: —*All enlarged.*

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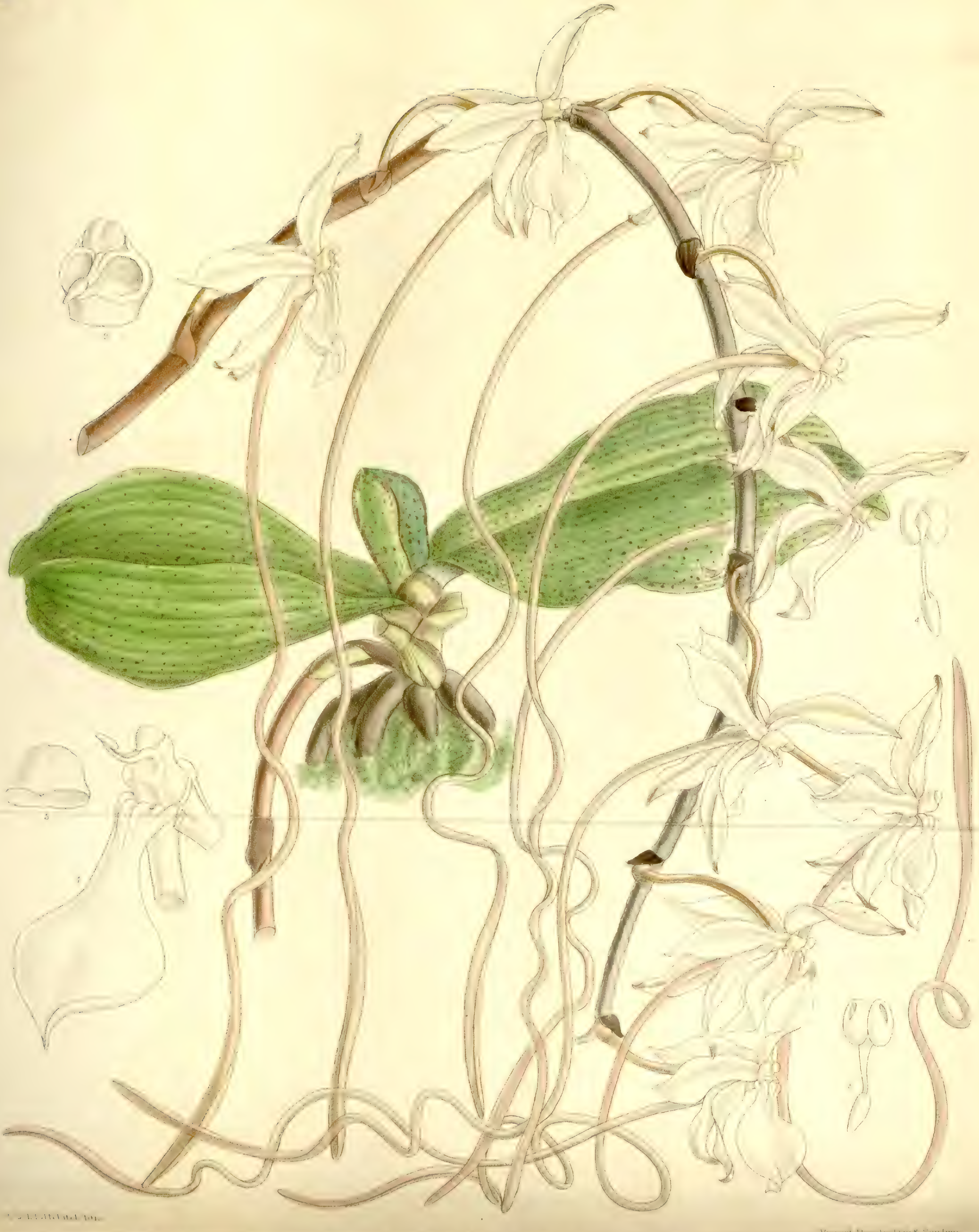

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TAB. 7442.

ANGRÆCUM KOTSCHYI.

Native of East Tropical Africa.

Nat. Ord. ORCHIDEÆ.—Tribe VANDEÆ.

Genus ANGRÆCUM, *Borg.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 583.)

ANGRÆCUM (Euangræcum) *Kotschyi*; caule brevi, foliis amplis obovatis obtusis rubro-punctatis, scapo brevi robusto, racemi penduli rachi elongato laxifloro brunneo, bracteis brevibus triangularibus acutis, pedicellis 1½-pollicaribus decurvis, floribus 2½ poll. diam. albis, sepalis petalisque patenti-reflexis oblanceolatis acuminatis subtortis apiculatis, apiculis brunneis, labello spathulato explanato cuspidato ima basi 3-costato, calcari longissimo gracili flexuoso v. torto pallide fusco apice anguste fusiformi, columna brevi crassa straminea, rostello gracili porrecto ascendente, anthera hemispherica, polliniis oblongis stipiti angusto sessilibus, glandula oblonga majuscula.

A. Kotschyi, *Reichb. f. in Gard. Chron.* 1880, vol. ii. p. 456 and p. 693, fig. 131. *G. Schneider* in *Orchidoph.* 1883, *Ic.* p. 797. *Warner & Williams, Orchid. Album.* t. 179. *Veitch Man. Orchid.* pt. vii. p. 132, *cum Ic.*, *Wien Illustr. Gartenz.* 1891, *Ic.* p. 309.

A. Grantii, *Batem. mss.*

As the exploration of tropical Africa advances, accessions may be expected to the genus *Angræcum*, which will probably prove to be the largest of epiphytic Orchids in the dark continent and in Madagascar. Unfortunately for Orchid growers, its flowers appear to be invariably white, or if tinged with colour, green only. I do not remember any other genus of epiphytic Orchids containing a considerable number of species, and many of these large-flowered, in which there is this such all but total absence of colour.

Furthermore, judging from the importation of Orchids, whether from the east or western coast, or the interior, and from the accounts of many intelligent travellers, tropical Africa is not only deficient in genera and species of epiphytic Orchids, as compared with tropical Asia and America, but such as have been found are in no respect the representatives of Dendrobium and Catleya, or of such bizarre forms as Catasetum and Stanhopea. On the other hand, some of the terrestrial tropical African genera, as *Phajus* and *Lissochilus*, afford species of remarkable beauty and variety of colour.

NOVEMBER 1ST, 1895.

Angræcum Kotschyi is a native of Eastern tropical Africa, where it appears to have a very wide range of distribution. It was discovered by Theod. Kotschy (after whom it is named) when travelling with Russeger in 1838, growing on *Capparideæ*, but the exact locality is not known. It was next met with by C. J. Meller in 1861, in the valley of the Shire river, not far from its junction with the Zambesi. In 1862 the great explorer Captain Grant found it in the Upper Nile, at Gondokoro; and Hildebrandt collected it, in 1876, on the seashore in Zanzibar, whence plants were sent through Mr. H. Waller to Messrs. Veitch by Sir John Kirk. These flowered for the first time at Chelsea in 1880. Lastly, plants were sent to Kew from the Kilimandjaro district by Consul C. S. Smith, when acting as British Commissioner for the delimitation of the Anglo-German Boundary in 1892, which flowered in the Tropical House of the Royal Gardens in October of this year. The noble raceme here figured was kindly forwarded by Sir Trevor Lawrence, Bt.; the leaves are from the Kew plant.

Descr.—*Stem* short; roots very thick, brown. *Leaves* three to four inches long, obovate, obtuse, pale yellowish green speckled with red-brown, margins waved. *Scape* short, with the pendulous raceme a foot to a foot and a half long, as thick as a goose-quill, red-brown, decurved. *Raceme* distantly many-fld.; bracts small, triangular, dark brown; pedicels with the ovary one and a half to two inches, flexuous, brown. *Flowers* white, two and a half inches broad across the petals, white with a very faint tinge of pink at the bases of the perianth segments. *Sepals and petals* spathulately oblanceolate, apiculate, extreme tips brown, spreading and reflexed, more or less waved. *Lip* broadly spathulate, with three short ridges at the very base; limb nearly orbicular, cuspidately acuminate; spur attaining a foot in length, very slender, flexuous, thickened and pale brown, from one and a half to two inches of the apex. *Column* short, stout; rostellum long, subulate, ascending. *Anther* hemispheric. *Pollinia* oblong; strap slender, dilated upwards, as long as the pollinia; gland oblong.—*J. D. H.*

Fig. 1, Lip and column; 2, clinandrium and anther; 3, anther; 4 and 5, pollinia with strap and gland:—*All enlarged.*

M. S. del. J. N. Fitch lith.

Vincent Brooks Day & Son Imp.

TAB. 7443.

SPATHOGLOTTIS KIMBALLIANA.

Native of Borneo.

Nat. Ord. ORCHIDEÆ.—Tribe DENDROBIEÆ.

Genus SPATHOGLOTTIS, *Blume*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 571.)

SPATHOGLOTTIS, *Kimballiana*; elata, pseudobulbis vestigiis foliorum vestitis, foliis 2-pedalibus anguste lineari-lanceolatis longe attenuato-acuminatis 5–7-nervis, bracteis cymbiformibus rufescentibus, floribus amplis, sepalis petalisque consimilibus late oblongis obtusis intus aureis, sepalis extus striolis rubris aspersis, labelli lobis lateralibus magnis auriculæformibus incurvis intus basi rubro striolatis, lobo intermedio angusto glabro basin versus lobulis 2 rotundatis glabris basi 2-dentatis instructo apice dilatato truncato.

S. Kimballiana, *Hort. Sander*.

Under *S. gracilis*, Plate 7366 of this work, I have alluded to its very close relationship with *S. aurea*, Lindl.,* of Mt. Ophir, *S. Wrayi*, Hk. f. of Perak, and the subject of this article, adding, "it may well be doubted whether these species are not varieties of one; and all the more from the fact of *S. gracilis* and *S. Kimballiana* having been received from Borneo growing in the same clump, by Messrs. Sander." The figure of *S. Kimballiana* here given, together with those of *S. aurea*, in *Gard. Chron.*, and *S. Wrayi* (*Hook. Ic. Pl.* t. 2086) and of *S. gracilis*, if they do not solve the doubt, enable the botanist to see at a glance the differences between the types of all; but the resolution of the doubt awaits a comparison of more specimens of each from other localities than that of the types; for until such are obtained, the first desideratum, namely, the direction and limits of the variation of each, cannot be taken into account. In so far as available materials enable me to judge, the following are diagnostic characters of the five above named species.

---

* The typical *S. aurea* was introduced by Messrs. Veitch in 1849, and published in 1850 by Lindley (in *Paxt. Fl. Gard.* vol. i. p. 16, and in *Journ. Hort. Soc. Lond.* (1850) 34), but the plant died before being figured. The species was again introduced in 1886 from Borneo, by Messrs. Sander, and is described by Reichenbach and figured in the *Gardener's Chronicle*, 1888, vol. ii. p. 92, fig. 9.

NOVEMBER 1ST, 1895.

S. aurea; surfaces of sepals concolorous, lateral lobes of lip linear falcate, basal lobules villous within; leaves three feet long by one and a half inches broad.

S. gracilis; surfaces of sepals concolorous, lateral lobes of lip oblong-spathulate, or oblong-truncate, basal lobules within and lateral teeth villous, leaves two inches broad.

S. Kimballiana; dorsal surface of sepals mottled with red-brown striæ, lateral lobes of lip broadly ear-shaped, basal lobules and teeth glabrous; leaves one to one and a half inch broad.

S. Wrayi; surfaces of sepals unrecorded, lateral lobes of lip linear-oblong, basal lobules and teeth glabrous; leaves one and a half inch broad.

I have not taken into account the form of the terminal lobe of the lip, which appears to be very variable. Reichenbach says of that of *aurea*, " mid partition of apex of lip subject to greatest variation, narrow and acute, or broad, or very broad and simply retuse, or 3-toothed."

S. Kimballiana was named by Messrs. Sander in compliment to the late Mr. W. S. Kimball, of Rochester, U.S.A., Nurseryman, who is described in the *Gardener's Chronicle* (1895, vol. i. p. 497) as famous for his collections of pictures, china, and articles of vertu; and especially for his four hundred species and varieties of *Cypripedium*. " In his great Orchid House, which is open daily to the public, five thousand plants of this Order may be seen in bloom at one time."

The specimen of *S. Kimballiana* here figured was obtained from Messrs. Sander & Co. in 1890. It flowers every spring in the warm Orchid House of the Royal Gardens.—*J. D. H.*

Fig. 1, Portion of lip; 2, column; 3, anther; 4, pollinia :—*All enlarged.*

7444

[illegible]

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TAB. 7444.

CATASETUM LEMOSII.

Native of Brazil.

Nat. Ord. ORCHIDEÆ.—Tribe VANDEÆ.

Genus CATASETUM, *Rich.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 551.)

CATASETUM *Lemosii*; pseudobulbis elongato-ovoideis pallidis sulcatis, foliis oblongo-lanceolatis acuminatis undulatis pallide viridibus, scapo ascendente, bracteis ovato-lanceolatis acuminatis viridibus, sepalis pallide flavo-viridibus, dorsali erecto oblongo-lanceolato acuto, lateralibus reflexis ovato-lanceolatis acutis, petalis flavo-viridibus erectis ovato-oblongis acutis, labello galeato crasse coriaceo virescente trilobo ore late obcordato, lobis lateralibus quadrato-rotundatis incurvis denticulatis, intermedio parvo triangulari recurvo, columna crassa rostrata, antennis gracilibus deflexis, polliniis oblongis caudiculæ latiusculæ æquilongis, glandula magna orbiculari.

C. Lemosii, *Rolfe in Kew Bulletin* (1894), 394.

C. roseum, *Rodrig. Gen. & Sp. Orchid. Nov.* vol. i. p. 128, *non Reichb. f.*

As stated by Mr. Rolfe in the *Kew Bulletin*, *Catasetum Lemosii* is the *C. roseum* of Don Barbosa Rodrigues, who appears to have been unaware, when he published it in 1877, of a previous *C. roseum* having been described by Reichenbach in the *Gardener's Chronicle* in 1872. For this reason Mr. Rolfe has substituted for this the name *Lemosii*, after Dr. Lemos, Superintendent of Schools in the Province of Para. In another respect the change of name is welcome, for neither in Don Rodrigue's drawing of the plant (of which there is a copy in the Kew Library) nor in specimens cultivated at Kew, are the flowers really rose-coloured. Little dependence, however, can be placed on colour in this, as in many other Orchids; for in Mr. Rolfe's description the sepals and petals are brownish flesh-coloured, ultimately becoming tawny-yellow; whereas they are rather greenish-yellow in the specimen here reproduced. According to Don Barbosa's description the sepals and petals should be rosy, the tip green behind, and orange-yellow in front.

Catasetum Lemosii is a native of the Ile de Marajo, Province of Para, at the mouth of the Amazons, whence plants were procured by Dr. Lemos, who gave them to Mr. E. S. Rand, by whom a fine specimen was sent to the Royal Gardens, Kew, in 1894, which flowered in March of the present year. The species had previously flowered (in 1892) in the collection of M. Robinow, Esq., of Hawthornden, Didsbury. Our figure is of the male plant; the female, which (as with its congeners) no doubt differs greatly in its flowers, is as yet undiscovered.

Descr.—*Pseudobulbs* two to four inches long, elongate ovoid, deeply grooved, pale grey from the persistent appressed leaf-sheaths. *Leaves* six to twelve inches long, oblong-lanceolate, acuminate, pale green; nerves prominent beneath. *Scape* with raceme six inches long, ascending, green, with few lanceolate acuminate bracts, about 8-fld.; floral bracts like the cauline, green. *Flowers* drooping, about one and a half inches long and broad (across the petals). *Sepals* and *petals* subsimilar, acute, pale, dark yellowish-green or brown; dorsal sepal erect, lateral at length reflexed; petals erect, as long as the dorsal sepal. *Lip* large, galeate, nearly globose, fleshy, dark green, suffused with red posteriorly, three-lobed; lateral lobes rounded, incurved, erose; midlobe small, triangular, recurved or revolute; base of lip within with many narrow parallel yellow bands. *Column* stout, beaked, green with a transverse red band; antennæ filiform, deflexed; anther beaked.—*J. D. H.*

Fig. 1, Column viewed laterally, and 2, in front; 3, anther; 4 and 5, pollinia with strap and gland:—*All enlarged.*

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M.S. del J.N.Fitch lith.

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TAB. 7445.

AMASONIA ERECTA.

Var. LATEBRACTEATA.

Native of tropical South America.

Nat. Ord. VERBENACEÆ.—Tribe VERBENEÆ.

Genus AMASONIA, *Linn. f.*; (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 1147.)

AMASONIA *erecta;* frutex gracilis pubescens, foliis obovato-oblongis obtusis in petiolum angustatis grosse crenato-serratis glabris v. puberulis luride viridibus, floribus racemulosis, racemulis brevibus in paniculam terminalem elongatam racemiformem dispositis subsecundis confertis bracteatis breviter pedicellatis, bracteis ovatis v. fere orbiculatis apiculatis serrulatis coccineis basi aureis, floribus nutantibus, calycis tubo brevi laciniis basi contiguis ovatis acuminatis, corollæ pallide flavæ tubo elongato piloso, lobis tubo plus quam dimidio brevioribus oblongis obtusis rugulosis coccineo-reticulatis ciliatis.

A. erecta, *Linn. f. Suppl.* p. 294. *Vahl Eclog.* vol. ii. p. 51. *Schauer in DC. Prodr.* vol. xi. p. 677. *Benth. in Ann. Nat. Hist.* vol. ii. (1839), p. 450. *Bocquill. Rev. Verbenac.* 121.

A. punicea, *Vahl. l. c., Schauer l. c., et in Mart. Fl. Bras.* vol. ix. p. 292. *Bocquill. l. c.*

A. arborea, *Humb. Bonpl. & Kunth Nov. Gen. & Sp.* vol. ii. p. 253.

Taligalea campestris, *Aubl. Guian.* vol. ii. p. 625, t. 252.

Var. *latebracteata*, bracteis orbicularibus breviter petiolatis remote denticulatis. Tab. nostr. 7445.

Amasonia erecta is the type (if the earliest discovered species is considered the type) of a small genus of Brazilian plants, which, owing to the variability of its floral bracts, has been described under two specific names by its author, Vahl, and most succeeding ones. Bentham indeed, upwards of sixty years ago, pointed out that Vahl's *A. punicea* was only a variety of *A. erecta*, but no subsequent author has referred to this, though Schauer in *DC. Prodr. l. c.* says of *punicea*, "very close to *A. erecta*, and hardly differing, except in the size of the leaves and bracts." An examination of a large suite of specimens from many localities, extending from Trinidad to Central Brazil (Prov. Piauhy), shows so great variation in the size of the foliage and form of the floral bracts, that it would be difficult to classify them; the most divergent being those with more or less erect spreading or recurved lanceolate acutely serrate bracts that do not arch over the racemes, and those figured herewith. And between these a graduated series of intermediates may be traced. A very distinct species, first described and figured in this work, *A. calycina* (Tab. 6915) has been confounded with *A. punicea*, and published as *A. punicea* (*calycina*) in the *Illustrt. Gartenzeit.*, 1890, p. 68, fig. 9 ; and as *A. punicea* in *Gartenflora*, vol. xxxv. (1886) p. 336, fig. 35, in neither of which works is the figure in the *Botanical Magazine* alluded to. Lastly, there is an *A. punicea*, figured by Séghers, in *L'Hortic. Belge*, vol. xx. (1894) which, if a correct representation, must be a very different species from either *erecta* or *calycina*, having opposite quite entire leaves, large lanceolate bracts, the lower opposite, a wholly scarlet calyx, and solitary axillary flowers with a small pure white corolla.

The specimen of *Amasonia erecta*, var. *latebracteata*, here figured was communicated by Messrs. Sander & Co. of St. Alban's, who had previously presented living plants of it to Kew, and which latter flowered in a stove in the Royal Gardens at the same time, namely, July, 1895.

Descr.—A small, slender, sparingly branched shrub a few feet high; branchlets red-brown. *Leaves* alternate and subverticillate, four to six inches long, obovate-oblong or ovate-lanceolate, obtuse or subacute, crenate-serrate, base narrowed into a petiole two to three inches long, dark green above, pale beneath. *Inflorescence* a racemiform elongate terminal panicle, with the flowers collected in a series of small subsecund drooping few-fld. racemules, each arising from the axil of and nearly hidden under a broad leafy bract, beyond which the corollas are exserted ; peduncle and pedicels very slender, bright red ; bracts an inch long, very shortly petioled, elliptic or suborbicular, apiculate, remotely denticulate, puberulous, lowest in the panicle foliaceous green and longer petioled, the remainder bright scarlet, passing at the base into golden yellow. *Flowers* drooping, one inch long. *Calyx-tube* short, hemispheric, pubescent ; lobes ovate, acuminate, erect, bases contiguous. *Corolla-tube* three times as long as the calyx, slightly dilated upwards, covered with spreading hairs, pale dull yellowish ; lobes not half as long as the tube,

see 3 pp further for remaining

oblong, obtuse, yellow, beautifully reticulate with red veins, margins undulate ciliate. *Filaments* exserted for half their length; filaments at length upcurved; anthers oblong. *Ovary* hemispheric; style very slender, slightly hairy above; stigmas slender, recurved—*J. D. H.*

[illegible]

Fig. 1, Tip of bract; 2, calyx with two lobes removed, ovary and style; 3, corolla laid open; 4 and 5, anthers:—*All enlarged*; 6, whole plant greatly *reduced.*

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M.S. del, J.N. Fitch lith.

Vincent Brooks, Day & Son Imp.

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TAB. 7446.

SELENIPEDIUM SARGENTIANUM.

Native of Brazil.

Nat. Ord. ORCHIDEÆ.—Tribe CYPRIPEDIEÆ.

Genus SELENIPEDIUM, *Reichb. f.; (Benth. & Hook. f. Gen. Plant.* vol. iii. p. 635.)

SELENIPEDIUM *Sargentianum*; foliis radicalibus oblongo-lanceolatis acutis basi equitantibus coriaceis aureo marginatis, scapo robusto hirsuto apice 2–4-floro fusco-rubro, vaginis solitariis bracteisque magnis ovato-cymbiformibus herbaceis obtusis viridibus hirsutis, perianthio hirsutulo, sepalis lateralibus in laminam ovatam obtusam 2-nervosam rubro-striatam labello suppositam connatis, dorsali oblongo obtuso rubro striato, petalis sepalis longioribus loriformibus obtusis subtortis aureis sanguineo striatis et late marginatis, labello oblongo aureo apice rotundato lateribus late inflexis orem oblongam claudentibus rubro maculatis marginibus tuberculo minuto albo ornatis, staminodio pallido late ovato pubescente.

S. Sargentianum, *Rolfe in Orchid Review*, vol. i. (1893), p. 239. *Gard. Chron.* 1894, vol. i. p. 781, fig. 100.

Under his description of this beautiful plant in the *Orchid Review*. Mr. Rolfe has pointed out its close relationship to *Selenipedium Lindleyi*, Reichb. f., and a comparison of the figures of the flowers of the two species shows that the forms of all their parts are almost identical. The most conspicuous differences between them are the great size and robustness of *S. Lindleyi*, which attains three feet in height, the length of its leaves, upwards of two feet long, the more numerous flowers disposed in a raceme, their colour pale or light green with red-brown nerves, and the absence of the two opposite contiguous white tubercles in the margin of the inflexed portions of the lip. The habitats of these two species are widely apart, *S. Lindleyanum* being (as far as is known) confined to Guiana, where it was discovered by Sir Robert Schomburgk in grassy swamps of the interior half a century ago, whereas *S. Sargentianum* is a native of the Pernambuco province of Brazil, no doubt from its mountainous interior, and probably from the chain of the Cariris or Tabatinga, which are clothed with forests. Of

the two *S. Sargentianum* is by far the most beautiful, indeed it may prove to be the gem of the genus in point of coloration. It may be suggested that when the intermediate tracts of country between Guiana and Pernambuco are explored, intermediate forms will be found; if so, the supposed species would fall under the denomination of geographical forms. As it is, the intervention of the vast low valley of the Amazons between their dwelling places appears to me to render such evidence improbable. *S. Sargentianum* was obtained in 1892 by the Royal Gardens from Messrs. F. Sander & Co. of St. Alban's, who imported it, and with whom it flowered in a tropical orchid house in February, 1395. It is named in honour of Prof. C. S. Sargent, Director of the Harvard Arboretum, Boston, U.S., and editor of "Garden and Forest."

Descr.—*Stem* short, tufted, clothed with the equitant bases of the distichous leaves, erect; root of stout fibres. *Leaves* six to eight inches long by one and a half broad, oblong-lanceolate, acuminate, coriaceous, bright yellow with golden margins, deeply sulcate along the mesial line above, keeled beneath, nerves obscure. *Scape* six inches high, as thick as a goose-quill, two- to three-flowered, laxly hairy, as are the sheaths; bracts pedicels and ovaries red brown, bracts on the scape and flowers one and a half to two inches long, ovate-lanceolate, subacute, green, herbaceous. *Flowers* two to three at the top of the scape, three and a half inches broad across the petals. *Dorsal sepal* erect, oblong, acute, pale yellow, with five strong bright red dorsal ribs united by cross nervules; lateral united into an ovate subacute blade placed under the lip. *Petals* much longer than the sepals, spreading and rather deflexed, strap-shaped, subtwisted, undulate, ciliate, streaked with red, margins bright red. *Lip* an inch and a half long, slipper-shaped, tip rounded, yellow with pale red veins, mouth oblong, sides deflexed in the mouth, lobes meeting by their margins, speckled with red, and with a minute white tubercle on the margin of each. *Staminode* broadly ovate, hairy, pale yellow.—*J. D. H.*

Fig. 1, Side and 2, dorsal view of staminode:—*Both enlarged.*

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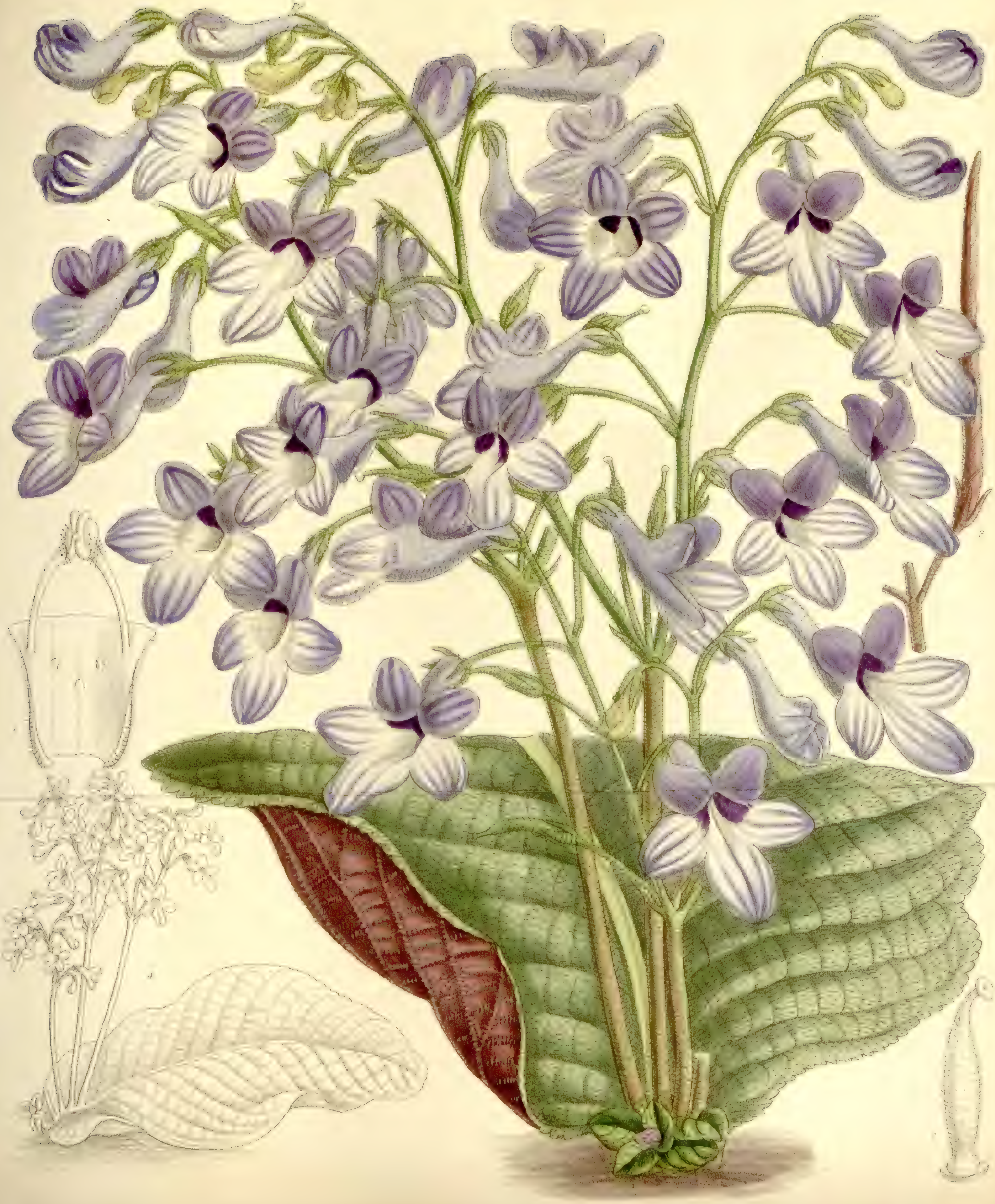

TAB. 7447.

STREPTOCARPUS WENDLANDII.

Native of the Transvaal.

Nat. Ord. GESNERACEÆ.—Tribe CYRTANDREÆ.

Genus STREPTOCARPUS, *Lindl.*; (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 1023.)

STREPTOCARPUS *Wendlandii*; acaulis, hirsutulus, folio solitario radicali sessili amplo late ovato-oblongo basi et apice rotundato marginibus undulatis crenulatisque, supra saturate viridi inter nervos perplurimos profunde impressos tumido, subtus purpureo rubro pilis albis substrigoso, scapis plurimis robustis 2-fidis ramis subpaniculatim multifloris pedicellisque glanduloso-pubescentibus, pedicellis elongatis solitariis geminisque, floribus nutantibus amplis, sepalis linearibus obtusis, corollæ tubo buccæformi decurvo glanduloso-pubescente, limbi 1½ poll. lati lobis 2 posticis ovato-rotundatis violaceis, 3 anticis longioribus oblongis albis marginibus late violaceis, filamentis apices versus glandulosis, connectivo tumido, staminodiis minimis, ovario pubescente, stylo brevi curvo, stigmate disciforme peltato, capsula 3-pollicari angusta cylindracea torta.

S. Wendlandii, *Hort. Dammann ex W. Wats. in Gard. Chron.* (1894) vol. i. p. 590. *Journ. Hort. Ser.* III. vol. xxviii. p. 223, fig. 37.

Streptocarpus Wendlandii far surpasses in size and beauty all the previously discovered species of its beautiful genus, and no one who saw it amongst other species bordering the centre bed of the Succulent House at Kew, during the spring and summer of 1894, can forget the magnificence of the display it afforded. Its history has been given by Mr. Watson in the *Gardener's Chronicle* above, from which it appears that it is a native of the Transvaal, and was first made known by Messrs. Damman of Naples, who described it in their catalogue for 1890-1891, having imported it from Natal in 1887. In 1888 it independently made its appearance at Kew, having come up as a seedling amongst some ferns imported from South Africa, when it was supposed to be a form or young state of *S. Sandersii.*

Mr. Watson has raised at Kew a hybrid between this species and *S. Dunnii*, Mast. (Tab. 6903) which is of still larger dimensions both in foliage and inflorescence than either of its parents. Of this, which is known as *S. Dyeri*, Wats. (in Garden and Forest, viii. (1895) 5, fig. 1), the leaves are two feet long and fifteen inches wide, and the inflorescence forms a sheaf of bright red-purple flowers nearly two feet high.

The specimen of *S. Wendlandii* here figured, flowered in the Royal Gardens, Kew, in April, 1895, and ripened its fruit about six weeks afterwards. The species continued flowering from June till November.

Descr.—Stemless, with a rosette of very small leaves at the base of the solitary developed one, hirsutely pubescent above. *Leaf* horizontal, attaining thirty inches long by twenty-four wide, broadly ovate-oblong, rounded at both ends, margins crenate and undulate; upper surface pale green, tumid between close-placed parallel deeply sunk nerves, which are joined by close-set arched nervules; beneath dark red purple, with strongly prominent nerves and nervules, and subhispid with white hairs. *Scapes* several, stout, forked at the tip, each fork bearing a many-fld. subpaniculate raceme of large solitary or geminate long-pedicelled violet-blue and white nodding flowers; bracts subverticillate at the fork, short, ovate, herbaceous. *Calyx* small; sepals linear. *Corolla-tube* nearly an inch long, trumpet-shaped, glandular-pubescent; limb one and a half inch broad, oblique; dorsal lobes recurved, nearly orbicular, violet, lateral rather larger and oblong, front lobe white, with broad violet margin and three violet streaks; throat with a large dark violet mark below each of the dorsal lobes. *Filaments* glandular on and below the tumid connective; staminodes three minute tubercles. *Ovary* pubescent; style very short, curved; stigma disciform, peltate. *Capsule* three inches long, slender, cylindric, strongly twisted.—*J. D. H.*

Fig. 1, Portion of tube of corolla with stamen and staminodes; 2, ovary; —*both enlarged*; 3, capsule of *the natural size.*

7448.

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TAB. 7448.

ALOE LUNTII.

Native of Southern Arabia.

Nat. Ord. LILIACEÆ.—Tribe ALOINEÆ.

Genus ALOE, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 776.)

ALOE *Luntii*; breviter caulescens, foliis densis primum rosulatis distichis demum subrosulatis ensiformibus recurvatis pallide viridibus immaculatis supra basin facie canaliculatis aculeis marginalibus obsoletis, pedunculo stricto erecto foliis longiore, racemis laxis paniculatis lateralibus patulis, bracteis minutis, pedicellis brevibus apice articulatis superioribus ascendentibus inferioribus cernuis, perianthii cylindrici tubo elongato rubello, lobis lineari-oblongis erectis tubo brevioribus, staminibus omnibus exsertis, antheris oblongis parvis, polline rubro.

A. Luntii, *Baker in Kew Bullet.* 1894, p. 342.

This very distinct new Aloe was discovered by Mr. W. Lunt, now of the Trinidad Botanic Garden, when he was attached as botanical collector to the expedition organized by J. Theodore Bent, Esq., in the winter of 1893–4, to explore the ruined cities of the province of Hadramaut, in Southern Arabia. This district had never been before explored botanically, and although the time of the year was unfavourable, about thirty new plants were discovered, of which three proved to be new genera. The present plant was found on the hills above Dobiabah, at an elevation of three thousand feet above sea-level. Both living and dried specimens were brought home, and one of the former flowered in the Royal Gardens at Kew last November. The leaves have no marginal prickles, and the flowers have an unusually long tube, resembling that of a *Gasteria*, but not dilated into a ball at the base.

Descr.—Shortly caulescent. *Leaves* seven or eight in a dense rosette at the top of the stem, at first distichous, ensiform, a foot long, two inches broad at the base, narrowed gradually to the point, pale green on both sides, without any spots, stripes or marginal prickles, deeply channelled down the face in the upper half. *Peduncle* stiffly erect, longer than the leaves. *Panicle* of four or five long lax racemes, the side ones spreading horizontally; bracts very small; pedicels short, articulated at the apex, the upper ones ascending, the lower cernuous. *Perianth* under an inch long; tube cylindrical, pale red; lobes linear-oblong, erect, shorter than the tube. *Stamens* all exserted; anthers small, oblong; pollen bright red.—*J. G. Baker.*

Fig. 1, An entire flower; 2, front view of anther; 3, back view of anther; 4, pistil:—*All enlarged*; 5, whole plant *much reduced.*

7119

M.S. del, J.N.Fitch lith.

TAB. 7449.

BUDDLEIA COLVILEI.

Native of the Sikkim Himalaya.

Nat. Ord. LOGANIACEÆ.—Tribe EULOGANIEÆ.

Genus BUDDLEIA, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 793.)

BUDDLEIA *Colvilei*; arbuscula v. frutex, ramulis foliisque junioribus ferrugineo-tomentosis, foliis lanceolatis acuminatis crenulato-serratis adultis glabratis in petiolum brevem angustatis, paniculis terminalibus pendulis oblongis multifloris, floribus breviter pedicellatis, calycis pubescentis lobis ovatis obtuse acuminatis, corollæ roseo-purpureæ v. coccineæ tubo cylindraceo superne paullo ampliato intus piloso calyce duplo longiore lobis rotundatis marginibus recurvis, ore albo, antheris oblongis, ovario pubescente, capsula oblonga, seminibus oblongis, testa laxa 3-alata reticulata.

B. Colvilei, *Hook. f. & Thoms. in Hook. f. Ill. Himal. Pl.* t. 18. *Clarke in Hook. f. Fl. Brit. Ind.* (*errore* Colvillei) 81. *Gamble List of Trees & Shrubs, &c. of Darjeeling*, p. 56; *Manual of Indian Timbers*, p. 267. *The Garden*, xliv. (1893) p. 482, *cum Ic. Gard. Chron.* 1892, vol. ii. p. 187. *André in Rev. Hortic.* 1893, p. 520, *cum Ic. Garnier in Ill. Hortic. Ser.* vi. p. 1, t. 10. *Journ. Hort. Ser.* iii. vol. xxxi. p. 85, *cum Ic.*

Buddleia Colvilei is certainly the handsomest of all Himalayan shrubs, and it is impossible to exaggerate its beauty as seen in the borders of a Sikkim forest, covered with pendulous masses of rose-purple or crimson flowers relieved by the dark green foliage. Unfortunately, as grown and flowered by that enthusiastic cultivator of rare plants, Mr. Gumbleton, at Belgrove, Co. Cork, and who alone has flowered the plant in Europe, the colour of the corolla is considerably paler than in Sikkim. In my "Illustrations of Himalayan Plants," I figured it as crimson from a drawing made by myself on the spot in 1849, when I first saw it in flower. This colour is confirmed by Mr. Gamble (Conservator of Indian Forests), who knew the plant well, and who in his "List of Trees, Shrubs and Climbers of Darjeeling," and subsequently in his admirable "Manual of Indian Timbers," calls it "an extremely handsome tree, with masses of dark crimson flowers, which appear in August, and make the tree very conspicuous in its habitat on the summits of Tonglo." It will be observed that Mr.

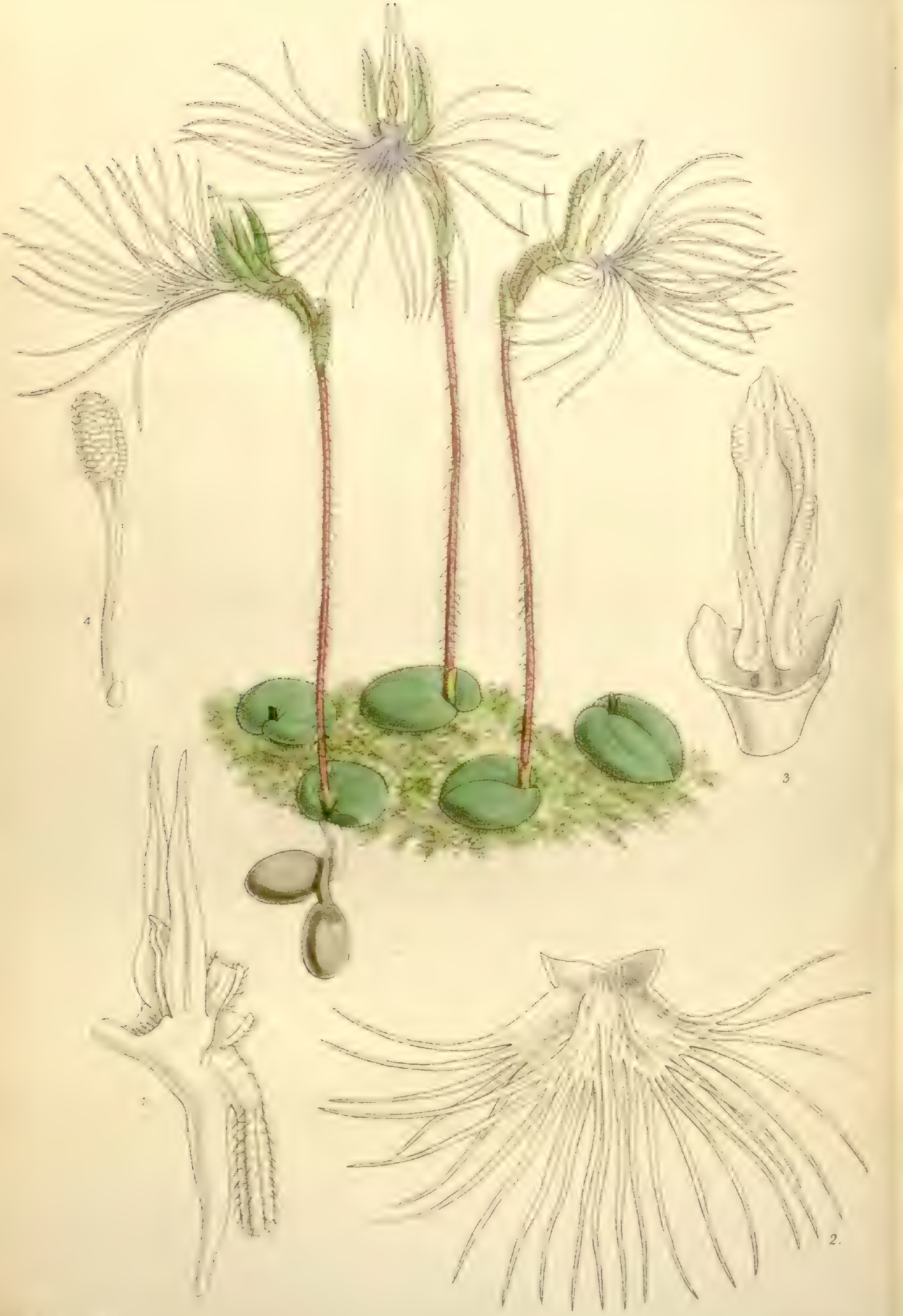
DECEMBER 1ST, 1895.

Gamble gives the flowering season as August, and I first found it in flower in Sikkim late in July, whereas Mr. Gumbleton's plant flowered in June, which and the climate of southern Ireland may account for the paleness of the colour. On the other hand, the flowers of Mr. Gumbleton's plants are rather larger than in any of my Sikkim specimens, which averaged little more than an inch in breadth of limb.

B. Colvilei is a native of the temperate regions of both the outer and inner ranges of the Sikkim Himalaya, at from 10,000 to 12,000 ft. elevation. It bears the name of my late friend, the Right Hon. Sir James Colvile, F.R.S., who at the time of its discovery was Puisne Judge of the Supreme Court of Calcutta, and President of the Bengal Asiatic Society.

Descr.—A large shrub or small tree, attaining a height of thirty feet; branches spreading; branchlets, petioles, young leaves and branches of the panicle clothed with rusty pubescence. *Leaves* five to seven inches long, elliptic-lanceolate, acuminate, crenate-serrulate, narrowed into a very short petiole, dark green and rugosely nerved above, pale beneath, with fifteen to twenty pairs of elevated arched nerves. *Flowers* in shortly peduncled thyrsiform pendulous panicles twelve to eighteen inches long, which are leafy at the base; branches of panicle and pedicels short, stout; bracts linear. *Calyx-tube* short, hemispheric, lobes ovate obtusely acuminate. *Corolla* rose-purple or crimson, with a white ring round the mouth; tube terete, twice as long as the calyx, white and hairy within, scarcely dilated above; limb one to one and a quarter inch diam.; lobes rounded, margins recurved. *Stamens* very short; anthers green. *Ovary* oblong, pubescent, 2-celled; style short; stigma capitate, obscurely 2-lobed, green. *Capsule* oblong, many-seeded.—*J. D. H.*

Fig. 1, Calyx laid open, showing ovary, style and stigma; 2, corolla laid open; 3 and 4, stamens; 5, transverse section of ovary :—*All enlarged.*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TAB. 7450.

BARTHOLINA PECTINATA.

Native of the Cape of Good Hope.

Nat. Ord. ORCHIDEÆ.—Tribe OPHRYDEÆ.

Genus BARTHOLINA, *Br.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 623.)

BARTHOLINA *pectinata*; herba gracilis pilosa, tuberibus oblongis, folio solitario sessile terræ applanato orbiculari convexo, basi 2-lobo amplexicauli, scapo 1-floro, flore amplo, bractis oblongis cucullatis ovario curvo dimidio brevioribus, sepalis erectis lineari-lanceolatis herbaceis pilosis, petalis erectis sepalis longioribus lineari- v. subulato- lanceolatis rectis v. falcatis albis, labello maximo circumscriptione semi-circulari v. flabellæformi alte trifido segmentis in lacinias 17–23 filiformes patenti-decurvas sectis, calcare lente curvo ovario æquilongo, anthera erecta angusta petalis dimidio breviore subacuta, loculis parallelis semi-tortis connectivo diaphano interposito, polliniis oblongis, caudicula gracili, glandula parva, stigmate parvo tumido.

B. pectinata, *Br. in Ait. Hort. Kew. Ed.* II. vol. v. p. 194. *Lindl. in Bot. Reg.* sub t. 1653; *in Hook. Comp. Bot. Mag.* vol. ii. p. 210 *et in Gen. & Sp. Orchid.* p. 333. *Endl. Iconogr.* t. 40. *Bolus, Orchids of the Cape Peninsula,* p. 111. (*Trans. S. African Phil. Soc.* vol. v. (1888).

B. Burmanniana, *Ker-Gawl. in Brand. Journ. Sc. & Arts.* vol. iv. (1818), p. 204, t. 5, f. 2, *& in Journ. R. Instit. London,* vol. iv. (1818), 204, t. 6, f. 2. *Lindl. in Hook. Comp. Bot. Mag. l. c.*
B. Lindleyana, *Reichb. f. Otia Bot. Hamb.* p. 119.
Orchis pectinata, *Thunb. Prodr. Fl. Ed.* II. *Cap.* p. 4.
O. Burmanniana, *Linn. Sp. Pl. Ed.* II. p. 1334.
Arethusa ciliaris, *Linn. f. Suppl.* 405.

One of the most singular of Cape plants, the "Spider Orchid" of the colonists, discovered by Burmann nearly a century and a half ago, and first introduced into cultivation in England in 1787, by Masson, the indefatigable collector sent from Kew to S. Africa. It inhabits grassy places amongst bushes at the foot of the hills near the sea, from Cape Town, eastwards to Grahamstown, and perhaps further. It was long supposed to be monotypic, but Mr. Bolus about ten years ago described a second species, *B. Ethelæ* (Journ. Linn. Soc. vol. xx. (1884), p. 472, and Orchids of the Cape Peninsula, p. 112, t. 3), which is a larger plant, with each of the filiform segments of the lip tipped with a flattened cushion, much like those that terminate the segments of the so-called nectaries of *Parnassia*,

and like these apparently non-secreting organs. *B. Ethelæ* is a very rare plant, found hitherto in only two places, both in the vicinity of Cape Town.

B. pectinata varies but little, and chiefly in the colour of the lip, from white to pale violet. I find no notice of the convexity of the leaf, which is a marked character in the specimens cultivated at Kew. The genus was named by Brown after Thomas Bartholin, a celebrated Danish anatomist and physiologist, born in 1616, Professor first of Mathematics, and latterly of Anatomy at Copenhagen. This Bartholin was himself son of an eminent Anatomist (Caspar Bartholina), and father of an illustrious family. His health having given way under the stress of work, he retired to a small estate which he had purchased in Denmark, where in 1670 he lost his library and all his MSS. by fire. He died in 1680, leaving five sons, all of whom attained eminence as Professors respectively of Anatomy, Antiquities, Theology, Mathematics and History; and of his three daughters one acquired distinction as a poet.

The Royal Gardens, Kew, are indebted to Harry Bolus, Esq., F.L.S., of Cape Town, for tubers of *B. pectinata*, which were received in 1892, and flowered in a cool house in the following July.

Descr.—A small tuberous terrestrial Orchid, one-leaved, one-flowered, hairy all over, except the petals and lip. *Tubers* ovoid, about a third of an inch long. *Leaf* lying flat on the ground, one half to one inch diam., orbicular, convex, deeply 2-lobed, and amplexicaul at the base, dull green. *Scape* three to four inches high, very slender, red-brown, with a very small basal tubular sheath; bract oblong-lanceolate, erect, herbaceous, half as long as the ovary. *Flowers* two to three inches broad across the lip. *Sepals* about one-fourth of an inch long, erect, herbaceous, hairy. *Petals* longer, linear-lanceolate or subulate, straight or falcate, white. *Lip* 3-partite, each segment cut to the base into numerous spreading threads. *Spur* as long as the ovary, deflexed. *Anther* long, narrow, erect; cells parallel, half twisted. *Pollinia* oblong, stipes long, gland small.—*J. D. H.*

Fig. 1, Tip of ovary, base of lip, petals and anther; 2, lip; 3, anther; 4, pollen:—*All enlarged.*

7151.

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TAB. 7451.

MUSA RUBRA.

Native of Pegu.

Nat. Ord. SCITAMINEÆ.—Tribe MUSEÆ.

Genus MUSA, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 655.)

MUSA (Rhodochlamys) *rubra*; stolonifera, caudice gracili 6–7-pedali, foliis oblongo-lanceolatis acuminatis in petiolum gracilem angustatis, spica erecta densiflora, rachi puberula, bracteis late ovatis obtusis cymbiformibus non revolutis læte roseis apicibus aureis, fl. masc. unaquaque bractea 3–5 sesqui-pollicaribus flavidis, calycis fere recti dentibus aureis, corolla calyce multo breviore late ovata acuminata, fl. fem. ovario trigono, fructibus sessilibus 3-pollicaribus fusiformi-trigonis, seminibus parvis depresso-globosis nitidis.

M. rubra, *Wall. ex Kurz in Journ. Agric. Hort. Soc. Ind.* vol. xiv. Part I., p. 301. *Baker in Annals of Botany,* vol. vii. (1893), p. 221. *Kew Bulletin* (1894), p. 258.

It is only through cultivated specimens that an accurate knowledge of the species of *Musa* is likely to be obtained, for it is very difficult to determine their characters from dried specimens, and years must elapse before botanists, or collectors with descriptive powers, shall have found the opportunity of investigating them in their native, often most unhealthy, forests. In the case of *M. rubra* it is fortunate that materials are forthcoming for giving an account of its habit, flowers and fruit. Of these materials the first and second are derived from a specimen that Mr. Watson brought into fine flower and immature fruit in the Royal Gardens, Kew; and of the fruit, well preserved specimens, with ripe seeds collected by the late Dr. M'Lelland, F.L.S., in Pegu, are preserved in the Herbarium of the Royal Gardens. And that these latter certainly belong to *M. rubra* is assured partly by their being quite like what the cultivated plant has borne, and by being accompanied with some male flowers which have the characteristic small petal of *M. rubra.*

M. rubra is first described in the work cited above by M. Kurz, from specimens collected by himself in Pegu. It must, however, have been discovered many years earlier, for Kurz has adopted a name of Wallich's probably given by him to plants cultivated in the Calcutta Botanical Gardens. Suckers of *M. rubra* were received at Kew from Dr. King in 1889, under the name of *Musa rosea*, which is a different species, more like *M. coccinea*, with shorter much broader leaves, and the petal nearly as long as the sepals. Dr. King further states that *M. rubra* has been in cultivation in the Royal Gardens, Calcutta, since 1882, but that its origin is unknown: at Kew it flowered freely in May.

Descr.—Stoloniferous. *Stem* five to seven feet high, slender, lower sheaths pale brown, upper green. *Leaves* four to six feet long, oblong-lanceolate, acuminate, narrowed into the petiole, pale green, not glaucous, paler beneath; petiole about one-third the length of the leaf. *Spike* erect, strict, rachis puberulous. *Bracts* three inches long, broadly ovate, cymbiform, bright rose-red, with obtuse golden tips, not revolute with age, smooth externally, inwardly transversely barred between the nerves. *Male fl.* four to six in each bract, about one and a half inches long, nearly straight, pale yellow; teeth of calyx short, revolute, golden yellow. *Petal* about half as long as the calyx, broadly ovate, acuminate. *Anthers* pale, yellow-brown. *Fem. fl.* about one-third shorter than the male. *Fruit* three inches long, fusiform, trigonous, many-seeded. *Seeds* about one-sixth of an inch in diameter, depressed globose, with a large circular basal hilum, and polished dark testa.—*J. D. H.*

Fig. 1, Male fl.; 2, lobes of calyx; 3, petal; 4, anther; 5, rudimentary stamens and pistil of imperfect fem. fl.; 6, fem. fl.; 7, immature fruit; 8, ripe seeds from Herbarium specimen:—*All enlarged* but 7 and 8, which are of *nat. size.*

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7443 Spathoglottis Kimballiana.
7429 Spiræa bracteata.
7441 Sternbergia Fischeriana.
7447 Streptocarpus Wendlandii.
7392 Talauma Hodgsoni.
7418 Trichocladus grandiflorus.
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